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GSCA 2104 Preview

The **Giant Screen Cinema Association** will hold its annual conference and trade show in Toronto, ON, Canada, Sept. 20–23. About 400 people are expected to attend the meeting, which will include screenings of 24 new films (a stunning 15 of which have never been seen at an industry conference before), clips from 25 films in production, and presentations on 15 films in development. (This is the largest number of film presentations at an industry conference in 15 years.) It will also feature six professional development sessions on topics such as film marketing, alternative content, and creating "wow" moments in GS films.

Several highlights of the meeting will be in the Technical Session, coordinated by the GSCA's Technical Committee. These include a demonstration of a laser-illuminated projection system; a shoot-out between several digital camera systems; a presentation on 3D by producer **Phil Streather** of **Principal Large Format**; and

*(see **GSCA** on page 10)*

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The World is Not an Eye Chart

A Discussion on High-Resolution Immersive Theaters

by Martin Howe

Twenty/twenty vision. Perfect vision. The best that the human eye can resolve. Therefore there's no benefit in creating a display system that has a higher resolution than that of the 20/20 line of an eye chart. Right?

Twenty/twenty vision means that at 20 feet (6 meters) a viewer can identify characters constructed of lines 1.75mm wide and 1.75mm apart. (1.75 mm is about 1/14th of an inch.) It's the ability to clearly see this gap and discern the letters of the eye chart that tests a person's visual acuity. The line thickness of the characters on an eye chart are one arc-minute (one 60th of a degree) wide when viewed from 20 feet away.

Therefore, on that premise, a high-resolution display in an immersive theater needs pixels no larger than one arc-minute wide. That equates to around 10,800 pixels for a dome (180 degrees x 60 pixels per degree) when viewed from the center of the theater (also assuming the viewer is at the dome's spring-line), and 4,320 pixels across in a flat-screen GS theater 70 feet (21.3 meters) wide (DIGSS1.1) when viewed from the central seat row.

Well, actually that's wrong. We can "see" objects far smaller than lines that are one arc-minute wide. Look around you now. How much of what you see is made up of regularly-shaped black and white lines equally spaced? Not much. The world is not an eye chart.

*(see **EYE CHART** on page 14)*

Dome Convergence

New Research Points to Obstacles and Opportunities

by Paul Fraser

The dome theater experience is unique. Arguably, dome theaters offer the most immersive out-of-home motion picture theater experience, one that's not about to be replicated in the home, at least not in any way that will impact dome theaters' attendance. Yet all stakeholders in the dome experience now confront a fractured marketplace, with two main sectors – giant-screen (GS) film-based domes, and digital fulldome (FD) theaters.

The FD sector has been growing every year since its inception around the start of this century, despite an almost standards-free marketplace with a hodgepodge of proprietary hardware and domes of varied sizes, resolutions, tilts, seating configurations, and overall presentation quality.

However, as **Mark C. Petersen** of **Loch Ness Productions** has recently reported, the growth in the number of brand new planetariums — permanent FD theaters — has leveled off in the past few years. These days, most growth in FD screen count is coming from the small- and portable-dome segment.

GS film domes are declining in numbers, but they are a relatively homogenous group, thanks to standards set 45 years ago by the inventor and dominant suppli-

*(see **DOMES** on page 6)*

Premiering in July and August

Hercules
Soldiers' Stories
Guardians of the Galaxy

See page 2.

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Premiering in July and August

Hercules

"Based on Radical Comics' *Hercules* by **Steve Moore**, this ensemble-action film is a revisionist take on the classic myth, Hercules."

Produced and distributed by **Paramount Pictures**. Directed by **Brett Ratner**. Starring **Dwayne Johnson**, **John Hurt**, **Ian McShane**, **Joseph Fiennes**, **Rufus Sewell**. Release: July 25.

Soldiers' Stories

"***Soldiers' Stories*** is timeless tale of conflict and the mental and physical toll that battle takes on individuals and society. Told through the eyes and words of real soldiers, *Soldiers' Stories* knits together modern soldiers with World War I by telling the 'grunt eye' view of what being a soldier is all about. The film was completed over 18 months and features painstakingly restored original 3D images from the time, and the narration of Academy Award-winning veteran actor **Mickey Rooney**."

Produced and distributed by **Kalisti Media**. Directed and written by **Jonathan Kitzen**, produced by Jonathan Kitzen and **Nick Reed**. Release: July 28.

Guardians of the Galaxy

"An action-packed, epic space adventure, Marvel's *Guardians of the Galaxy* expands the Marvel Cinematic Universe into the cosmos, where brash adventurer Peter Quill finds himself the object of an unrelenting bounty hunt after stealing a mysterious orb coveted by Ronan, a powerful villain with ambitions that threaten the entire universe. To evade the ever-persistent Ronan, Quill is forced into an uneasy truce with a quartet of disparate misfits – Rocket, a gun-toting raccoon; Groot, a tree-like humanoid; the deadly and enigmatic Gamora; and the revenge-driven Drax the Destroyer. But when Quill discovers the true power of the orb and the menace it poses to the cosmos, he must do his best to rally his ragtag rivals for a last, desperate stand, with the galaxy's fate in the balance."

Produced and distributed by **Walt Disney Pictures**. Directed by **James Gunn**. Starring **Chris Pratt**, **Lee Pace**, **Zoe Saldana**, **Karen Gillan**, **Bradley Cooper**, **Vin Diesel**, **Josh Brolin**. Release: August 1.

Walt Disney Pictures

Guardians of the Galaxy

GSCA's Giant-Screen Research Workshop

by Mary Nucci

If you attend a meeting of the **Giant Screen Cinema Association** and ask anyone whether giant-screens films are immersive, engaging, or educational, the resounding answer will be "yes." If you then ask what evidence supports this belief, the answer will likely be "I don't know." And therein lies the problem. We all *believe* that the giant-screen format provides an educational and immersive experience like no other. But in this age of increasingly tight, research-driven budget decisions, the lack of evidence is a problem for potential funders and educational institutions that would like to support film production or field trips.

In the more than 40 years since the first giant-screen film, there has been no purposeful research that has examined any of the claims and assumptions about the potential impact of GS on audiences. Although many GS films undergo evaluation during and after production, they do not provide the kinds of research data needed to demonstrate impact. The data that exist from evaluations suggest that GS films likely influence audiences in a variety of ways. A 2005 review of evaluation results showed that learning outcome in terms of verbal knowledge increased after viewing, along with increased interest in the film topic, and professed behavioral change in the week following film viewing. At the 2008 symposium in Jersey City, NJ, "Connecting Society with Science: The Greater Potential of Giant-screen Experiences," a review of three GS films found that narrative was key to learning from giant-screen films. Two separate single-film evaluations found that there were questions about the role of 3D in learning from giant screen.

More promising in terms of the impact of GS, in 2010 **Joe Heimlich**, **Jessica Sickler**, **Victor Yocco**, and **Martin Storksdieck** compared audience responses to the planetarium show ***Maya Skies*** shown in a fulldome planetarium, a standard movie theater screen, and on a 42-inch (1-meter) television screen. Results suggested that participants who saw the fulldome version experienced a greater sense of immersion and had a greater interest in learning. The GS film and the television monitor outperformed the standard movie screen, suggesting that GS might promote learning experiences.

In their paper, Heimlich, Sickler, and Yocco joined the increasing number of calls for focused research on the impact of the giant screen. **Johnny Fraser** and co-authors wrote in 2012 that

> Given the tremendous changes in projection technology and the high cost of conversion of facilities or obsolescence of existing, very expensive facilities and projection systems, we believe these results call for the informal science education community to undertake more rigorous research into the comparative value of these expensive formats. We believe that there is a need for more comparative research in order to form a sound argument in favor of the learning benefits of GS cinema to justify continued public support. After more than 40 years, scientific evidence is starting to emerge, but given the radical shifts that digitization will bring to learning media, further exploration will be critical to the future willingness to support these theaters as … learning tools (p. 191–192).

In response to these calls, in 2013 the GSCA sought and received funding from the **National Science Foundation** to hold a one-day workshop to promote the development of an agenda for research on GS. This workshop built upon the 1999 NSF-funded symposium, "Giant-screen Films and Lifelong Learning: A One-Day Symposium" and the 2008 symposium mentioned above.

The workshop, "Setting the Agenda for Giant-Screen Research," was held on Oct. 18, 2013, in conjunction with the **Association of Science-Technology Centers**' annual conference in Albuquerque, NM. The key goal of the workshop was to engage GS stakeholders to develop a research agenda that would define the key issues in GS. Long term, the workshop aimed to create a collaborative community of GS stakeholders, academic researchers, and aligned organizations for the implementation of the research agenda. Its objectives were to:

- Establish connections between research and practitioners,
- Create the research infrastructure for collaborative research proposals,
- Develop a long-term research program which examines key issues in GS,
- Disseminate results through published proceedings, online reporting and peer-review publications, and
- Encourage and mentor GS researchers.

Recognizing that depth is key to developing an effective and accepted research agenda, and to promoting industry and research collaboration, the invited participants represented a diverse group. The GS industry perspective was provided by GS filmmakers, producers, marketers, exhibitors, GSCA staffers, and members of the GSCA Lifelong Learning Committee. Representatives from industry-affiliated

*(see **RESEARCH** on page 15)*

Apology

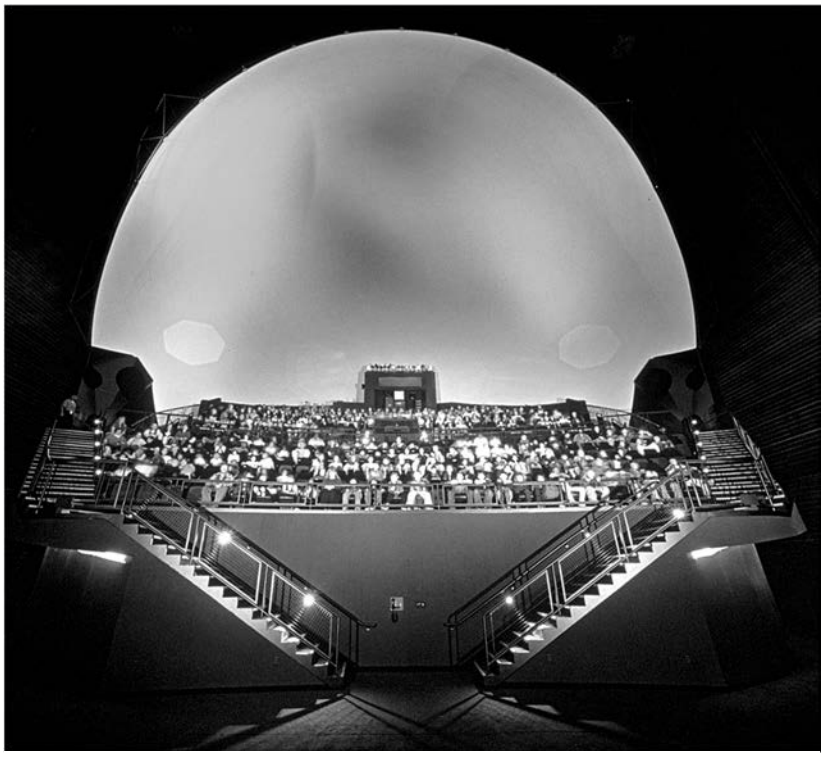
In the May-June issue of *LF Examiner*, we ran an article about laser projectors by **Bill Beck**. When we accepted the article from him, he had recently left **Laser Light Engines**, the company he co-founded, and was acting as an independent consultant. Within days of publication, we learned that Beck had just accepted a position with **Barco**, a major manufacturer of digital cinema projectors, whose products Beck discussed in that article, along with those of **Christie** and other manufacturers. Beck did not inform us in advance about this potential conflict of interest. We are not aware of any inaccurate or overtly biased information in the article, but we apologize to our readers for the appearance of a conflict of interest.

Imax posts $13M profit in Q2

On July 24, **Imax Corporation** reported its financial results for the quarter ending June 30, 2014. The company reported a net profit of $13.3 million ($0.19 per share) on revenues of $79.1 million, compared to a profit of $11.8 million ($0.18 per share) on revenues of $81.7 million in the second quarter of 2013. For the six months ending June 30, Imax posted a profit of $13.8 million ($0.21 per share) on revenues of $127.3 million, compared to a profit of 14.7 million ($0.22 per share) on revenues of $131.4 million in the first half of 2013.

In the second quarter of 2014, the company signed deals for 20 theater systems (three joint revenue sharing deals), installed 30 new systems, and converted four theaters to digital. As of June 30, the backlog stands at 419 systems, compared to 284 at the same time last year.

The worldwide total of IMAX theaters as of June 30 is 868, of which 735 are in multiplexes, 114 are in institutions, and 19 are in commercial destination locations.



The Science Museum of Minnesota's convertible Omnitheater will get an IMAX laser system.

Science Museum of Minnesota

Imax donates theater to USC

Imax Corporation has donated an IMAX digital theater system to the **University of Southern California**'s School of Cinematic Arts. The 50-seat theater has a 24x45-foot (7x14-meter) screen and is named for **Michelle** and **Kevin Douglas**, Imax's largest shareholders, who donated the auditorium. It is part of the Robert Zemeckis Center for Digital Arts, located on the university's Los Angeles campus.

Director **Steven Spielberg** spoke at the facility's opening on June 4, according to a news item at ComicBookResources.com, and commented on the appropriateness of an IMAX theater in training today's film students. "Everything they do begins on a very small screen. They take their work home with them, and the small screen becomes what they can work on — their iPads, their iPhones. They're very used to seeing things tiny. The result of that is, film students shoot too many damn close-ups. The result of this [donation] is, they're going to stop shooting close-ups, and they're going to start expanding the horizons that IMAX affords them."

Two museums to get laser IMAX

Two museums have signed deals to install the next-gen, laser-illuminated IMAX digital theater system in their existing IMAX theaters. The **Science Museum of Minnesota** in St. Paul is the first IMAX Dome theater to agree to acquire the system. The museum's 400-seat theater was built in 1999, and is one of only four in the world that is convertible: its 88.5-foot (27-meter) dome screen can be retracted to reveal a flat screen 66x90 feet (20.1x27.5 meters).

The other signing is the **Museum of Discovery and Science** in Fort Lauderdale, FL. Its 262-seat IMAX theater opened in 1992 with a screen 60x80 feet (18x20 meters).

The first installations of the next-gen system are expected in 2015, but no opening date was given for either of these theaters. These two join the **Smithsonian Institution**'s three IMAX theaters in the Washington, DC, area in signing for the new system, which will use technology acquired from **Eastman Kodak** and developed with **Barco**, to provide images with "greater brightness and clarity, a wider color gamut, and deeper blacks," according to a press release.

Kodak, studios make deal to save film

Several Hollywood studios are making long-term commitments to buy motion picture film stock from **Eastman Kodak** to ensure that the company does not shut down its manufacturing lines, according to the *Wall Street Journal* and other news outlets. Major filmmakers like **Chris Nolan**, **Quentin Tarantino**, **Judd Apatow**, and **J.J. Abrams** lobbied the heads of **Warner Bros.**, **Universal Pictures**, **Paramount Pictures**, **Walt Disney**, and other studios to make sure that shooting on film remains an option.

With the dramatic spread of digital projection, the amount of film stock produced by Kodak (primarily for release

prints) has fallen from a peak of 12.4 billion linear feet in 2006 to an estimated 449.3 million this year, a drop of 96.4%. With the departure of **Fujifilm** from motion picture film manufacturing last year, Kodak remains the only maker of motion picture film in the world.

Under the deal, the studios will agree to "buy a set quantity of film for the next several years, even though most movies and televisions shows these days are shot on digital video," according to the *Wall Street Journal.* The paper quoted Warner Bros. CEO **Kevin Tsujihara** as saying, "In an industry where we very rarely have unanimity, everyone has rallied around keeping film as an option for the foreseeable future."

Imax makes three multiplex deals

Imax Corporation has signed deals with multiplex exhibitors in China, South Africa, and the republic of Georgia. In China, **Shanghai Film Corporation** and two of its subsidiaries will add 19 new IMAX theaters to the chain's three existing screens. According to a press release, a "significant number" of the 19 are "scheduled for installation before the end of 2015.

In South Africa, **Ster-Kinekor Theaters** is adding two IMAX screens to the one it opened in Durban last November. The first opened in June in Pretoria, and the second will open in Johannesburg in the last half of 2015.

In Georgia, **Cavea Cinemas** will open the country's first IMAX theater at a ten-screen multiplex in Tbilisi. No opening date was given.

Imax film deal with Universal

Imax Corporation has announced an agreement with **Legendary Entertainment** and **Universal Pictures**, a division of **Comcast Corp.**, to release up to 15 of the studios' films to IMAX theaters by the end of 2017. Previously announced titles from the studios included ***Dracula Untold*** (October 2014), ***Seventh Son*** (February 2015), and ***Everest*** (September 2015, a dramatic retelling of the tragic 1996 events that were the subject of **MacGillivray Freeman Films'** 1998 documentary). New titles under the deal include ***Fast & Furious 7*** (April 2015), ***Jurassic World*** (June 2015), ***Crimson Peak*** (October 2015), and ***Warcraft*** (March 2016).

First multiplex laser system deals

Christie and **Barco** have each announced their first permanent installations of laser-illuminated projection systems in multiplex theaters. Christie debuted its 4K laser system in June in China's **Shanghai Film Art Center**, in a 1,000-seat auditorium with a high-gain white screen that is 75 feet (23 meters) wide. The initial system is a dual-projector, three-primary system, but it will be upgraded to a 6P (six-primary) system "at some time in the future," according to Christie spokesman **David Paolini**.

Barco says it will install its 4K 6P laser projection system at the **JT Bioscopen** multiplex in the **Hilversum Media Park** outside Amsterdam in November 2014. No details were available about the size of the screen or the theater's seating capacity.

Barco hires Beck

PERSONNEL

Barco has hired **Bill Beck** to "work closely with its sales and R&D teams" on the company's laser projection systems. Beck was co-founder and chairman of **Laser Light Engines**, and former chairman of the **Laser Illuminated Projection Association**.

Butts named McKnight fellow

Melissa Butts has been named a 2014 **McKnight Foundation** Media Artist Fellow. Selected by a panel of professionals who live and work outside of Minnesota, the $25,000 mid-career fellowships are presented each year to three Minnesota media artists.

Butts began her career at the PBS science series *Newton's Apple* and later produced documentaries about Mars. In 2012 she directed ***Space Junk 3D***, a giant-screen film distributed by **K2 Communications**, and has recently released ***Electropolis***, distributed by **National Geographic**.

Melssa Butts

The McKnight Foundation is a Minnesota-based family foundation that "seeks to improve the quality of life for present and future generations."

Goodrich running for congress

Bob Goodrich, president of **Goodrich Quality Theaters**, is running for a seat in the U.S. Congress, representing Michigan's third district, which includes Grand Rapids and Battle Creek. Goodrich is currently unopposed for the Democratic nomination for the post, which will be decided in the Aug. 5 primary election. The current representative is Justin Amash, a Republican who was elected in 2010. The district has voted for the Republican presidential candidate in the last six elections, and the Congressional seat has been held by a Republican since 1993.

Bob Goodrich

Goodrich has been president and CEO of Goodrich Quality theaters since 1967, expanding the chain his father started in 1930 in Grand Rapids from a single screen to 271 screens in 29 theaters in four states, including four IMAX theaters. Goodrich also owns three non-commercial radio stations in Michigan and Illinois. He holds a Bachelor's and a Juris Doctor law degree from the University of Michigan and a Masters of Law from New York University.

Dome Convergence: New Research by Paul Fraser

*(from **DOMES** on page 1)*

er of the segment, **Imax Corporation**. But that uniformity is at risk of being disrupted by the inevitable transition to digital projection. Most GS dome theaters are in a holding pattern while they await a technology solution that is closer to what they're used to, rather than pursuing FD as their digital end game.

But for all their differences, the GS and FD sectors have much in common. The "win-win" scenario would be for these two sectors to converge on common approaches to programming, technology, marketing, overall business model, etc.

Realistically, the near-term opportunity for convergence is between GS film domes and giant-screen sized FD theaters, those with diameters greater than 60 feet (18 meters). There are almost 100 film-based GS dome theaters, most of which will transition to digital in the next few years. On the other hand, there are more than 135 giant FD theaters worldwide, the majority of which are in planetariums. Some now present FD versions of GS films. At least 15 venues have both GS and FD systems at the same facility, in a few cases even in the same auditorium. So some convergence has already begun to happen.

Is there an opportunity for the GS dome and FD markets to converge further, in a way that would benefit both communities? What are the obstacles? What are GS and FD theaters prepared to do to accelerate convergence? What are they not willing to do?

Late in 2013, working through my consulting firm, **Blaze Digital Cinema Works**, I decided to embark on a *pro bono* research study to begin to answer these questions for the benefit of the members of the **Giant Screen Cinema Association** and **IMERSA**, the association of Immersive Media, Education, Research, Science, and Art. I should add that this wouldn't have been possible without the valuable assistance of key people at those two organizations.

Research goals and design

The study had two main goals: to capture the similarities and differences between the GS dome theaters and the world's largest FD theaters; and to better understand the potential for convergence of the two sectors.

I developed a self-administered online survey that was sent to members of the GS film dome and FD theater communities. The sample of GS film dome operators was composed mainly of venues that are current or recently lapsed members of the GSCA. The sampled FD operators were those with at least one FD screen at their site at least 60 feet (18 meters) in diameter, the minimum size that the GSCA considers a "giant screen." (At least two respondents in this category were formerly film-based, but have converted to non-fulldome digital projection.)

Paul Fraser

In all, 210 individuals, representing as many domes and 196 unique organizations in 37 countries, were sent an e-mail message inviting them to take the survey. The surveys were completed Feb. 1–18, 2014. The total number of usable sets of responses received was 57, a 29% response rate.

(While this response rate overall was not bad, international markets were under-represented, with only 13 countries reporting, compared to the total sample frame of 37 countries. Asia-Pacific operators were notably absent: despite a relatively large number of theaters in the sample frame from Japan and China, there was not a single respondent from those countries. Proficiency with the English language was likely the main issue, since the e-mail invitations and the survey itself were in English only.)

A summary of the study's main findings comparing responses from GS film versus GS non-film domes can be viewed in the table on the opposite page.

Cross-programming potential

Let's start with astronomy subjects, the obvious and historic staple of FD theaters associated with, or called, planetariums. My study shows that a high percentage (more than 80%) of both GS film and FD theaters play some non-astronomy content, which is quite encouraging for proponents of convergence: it suggests that FD theaters are open to a range of pre-produced content. (However, in my experience, the non-astronomy content is most often natural science-based documentaries).

Not surprisingly, from a percent-of-schedule perspective, FD theaters are more committed to astronomy programming: they reported astronomy subjects filling more than two-thirds of their screen time, more than double that of GS film domes.

Conversely, in a modest sign of GS film domes' openness to presenting non-film content, one-third of GS film domes expressed interest in adding real-time CG shows (already a meaningful component of FD schedules), in addition to the 14% that already do it.

The potential for more convergence might be accelerated if dome theaters added other media systems. This study showed that GS film theaters are far more likely to devote 100% of their show schedules to that one medium than their FD counterparts. On the other hand, FD respondents often had two or more digital presentation systems, and some show GS product in FD format and/or in the origi-

Summary of Select Findings from Dome Survey			
		GS Domes with a Film System	Fulldome & Other (GS Domes without a Film System)
Theater Attributes	Size of theater (dome diameter, seat count)	larger	
	Incidence of unidirectional seating	92%	65%
	Incidence of tilted domes	96%	55%
	In a museum, science center, planetarium	almost all	almost all
Programming	Number of programming slots per week	higher	
	Number of different titles per week and per year		much higher
	Preferred running times	40+ min.	25 - 29 min.
	Incidence of playing any non-astronomy films	large majority	large majority
	…but, % of schedule devoted to non-astronomy	> 70%	< 33%
	Avg % of schedule for real-time computer graphics	negligible	27%
	Content type preference	live action, but not exclusively	animation, but not exclusively
	% of respondents with an opinion, with a negative view of FD shows reformatted from GS films	40%	55%
	Programming budgets	much higher	
Marketing	Marketing budgets	much higher	
	Media mix	much more broadcast & outdoor	
Operations	Number of people needed to operate theater		slightly lower
Business Model	Film license fees' structure	mostly variable	mostly fixed
	Incidence of separate theater ticket available	higher	
	% of theaters operated as a revenue center, vs. a cost center	80%	74%
Business Metrics	Theater annual attendance	higher	trend is better
	Ticket pricing levels	higher	
	Host attraction annual attendance	higher	

The complete PowerPoint presentation with all the dome survey's findings can be downloaded from the GSCA website (Member Center/Industry research) and IMERSA website (Resources/Materials). Member log-ins are required.

nal rectilinear format, projecting a "window" on the dome screen. This flexibility in programming could explain why a higher percentage of digital domes are experiencing annual attendance growth.

Of course, the holy grail of convergence is probably the potential for wide acceptance of FD versions of GS films. In this study, one-third of digital domes have licensed such GS-to-FD films, which is not too bad, considering the many known obstacles. However, when asked in an open-ended question which titles they had booked, only two films were named (once each) by all the FD respondents: ***Sea Monsters*** and ***Forces of Nature***, both from **National Geographic**. Answers to other questions suggested limits to greater acceptance of GS-to-FD transfers, but they also offered clues to GS film producers who want to do something about it.

When asked for an opinion of the fulldome shows reformatted from giant screen films, 55% of the FD respondents who had an opinion had negative views, compared to 40% for the GS theater group. However, very few of the film theater group had any opinion at all, which is likely explained by not having much, if any, experience with GS-to-FD conversions.

Many more FD respondents had an opinion, and their negative opinions were more expansive. For instance, one non-film theater operator whose program is dominated by fulldome shows, yet has booked FD versions of GS films, said, "a few re-formatted [GS] films do work on the dome screen, [but] many conversions do not look good because of strange warping and visual artifacts, especially on the left- and right-hand sides near the horizon. Certain shots with narrow angle lenses or wide angle...distract from the experience quite a lot. Some shots, originally shot flat, just do not look good in the dome."

Other negative comments from non-film respondents included, "there are a lot of gratuitous 3D moments for those theaters that have 3D" and this concise assessment, "[it's] less immersive." A few comments touched on the variations in planetarium and FD theater layout: "not suited for my dome due to its concentric seating," and "this is a terrible idea...a section [of the picture] is cut off," referring to the fact that a 4x3 GS image re-formatted for FD presentation doesn't fill the entire 180 -degree hemispheric screen, whereas purpose-made FD shows always do. Finally, one FD respondent mentioned a practical, economic obstacle: "[licenses are] too expensive."

A strong minority of FD operators (45% of respondents with a view) cited the plus-

*(see **DOMES** on page 8)*

*(from **DOMES** on page 7)*
es of GS-to-FD transfers. Among them, "having access to a large and diverse range of content is critical for the long-term appeal and sustainability of our dome. Restricting content to space and astronomy content will result in reduced public appeal and a loss of relevance." From another respondent: "I fully support this option...as it broadens [the film] choice" and offers "better live [-action] shooting and visual effects." Even after complaining about "some warping" with a GS-to-FD, one FD operator chose the title anyway because he felt the minor weakness in the technical presentation was "overcome by the breadth of content and the experience."

So what can be done to further the acceptance of GS-to-FD transfers? Setting aside potential business-model or licensing solutions (more on that later), the study clearly pointed to a problem with the perceived quality of many GS-to-FD transfers. As I've written before, this obstacle is simply a more severe version of a problem that producers and distributors of GS films currently face: for the best look and best business results, GS films have to be shot and/or post-produced for the dome. I'll bet most of the problematic GS-to-FS transfers that don't look good on FD screens don't look so good on the GS film domes, either. If producers and distributors plan on releasing to the combined GS film dome *and* fulldome sectors, a much bigger pool of prospective exhibitors becomes possible. This may make the added costs of production post-production more palatable, and the resulting on-screen product more appealing to FD theaters.

The business models

The biggest obstacle to convergence is the mismatch in business models. This study confirms that FD show licensing is typically on a fixed-sum basis (with license periods that can range from one to ten years or more), whereas GS film licensing is usually a percentage of gross box office (GBO) or a per-head fee. Further, many of the larger, higher-attendance FD theaters pay fixed sum fees that would equate to a miserably low percentage of GBO.

Put another way, if all GS film theaters converted to FD, and paid license fees based on the current market rates of fixed-sum pricing for FD shows, the average license revenue per dome screen would fall through the floor, a potential death blow to the already tenuous economic viability of GS films.

Our study backs this up: the average annual film licensing budgets for GS film domes was about six times those of their non-film counterparts. This was partially explained by the greater number of new titles licensed each year by the former, and lower annual theater attendance. But the bottom line is that for roughly comparably sized dome screens, FD theaters pay much less in license fees per title.

The fixed-sum license fee model in the FD sector reflects a "catalog" or commoditized view: new shows are licensed for their title or topic, and added to schedules on an irregular basis. Rarely are they launched with much of a marketing push. With long license periods, no minimum show requirements, and no incentives to give a new title a strong presence on the show schedule, or remove old titles, the typical FD theater's list of titles continues to grow, taking away the urgency, and indeed capacity, to add many new titles each year. And with no gate-share structure, FD distributors have no incentive to help theaters build attendance and revenue through marketing. They usually provide only the most basic tools, such as key art and trailers, and even these are often spurned by operators as unwelcome or unnecessary. Virtually all (93%) GS film dome theaters play trailers, whereas only about two-thirds of FD theaters do. Very little is spent on direct consumer marketing by either FD theaters or distributors.

Our study confirms that even the larger FD theaters have marketing budgets which are significantly smaller than their GS film counterparts. To make fair comparisons adjusted for attendance, we asked respondents to compute their per-head marketing expenditure: GS film theaters said they spent about 50% more than FD theaters. About 75% of GS dome theaters use paid external media, compared to only 50% of non-film domes. Further, the GS film domes were much more likely to report using broadcast (TV and radio) and out-of-home media, the most expensive media options. This explains the differences in marketing budgets.

While this study confirms that the FD segment tends to book content on a fixed-fee basis, two-thirds of these theaters wanted to see variable license fees for FD shows. This bodes well for convergence. And conversely, a surprising 50% of the GS film theater group said they'd like to see fixed-sum licenses for GS films! (Unfortunately, we didn't probe this with further questions to find out why, or to ask what formula might be used.)

In my view, a healthy, efficient film market depends on license fees that vary in direct proportion to each film's box-office success. If the FD sector is prepared to move to variable license fee pricing, this should be pursued by all distributors, both of GS-to-FD shows, and of original FD content, too. However, the devil is definitely in the details: as GS distributors would agree, such a move cannot happen without underpinning it with at least a minimum number of shows during a six-to-twelve-month license period, along with a more theatrical approach to launching, marketing, and scheduling new shows.

I also feel that, along with variable license fee pricing, an important foundation to convergence is taking a "revenue center" or "profit center" approach to the theater's operation, versus a "cost center" approach. (For that matter, one could argue that a "profit center" approach is fundamental to the health of the entire GS sector, and any increase in the percentage of GS theaters that take a "cost center" approach spells trouble for the industry overall. But I digress; let's save this for another *LF Examiner* article!)

Eighty percent of GS film domes reported that they operate as a revenue center in their organization, compared to 74% of fulldomes. Related to and supporting the revenue center approach, theaters must have the ability to record and report attendance (at least) and GBO (ideally) for each title. The study showed that 100% of GS film theaters now record, or are capable of recording, attendance for each film

(as expected), and that almost all (92%) of FD theaters answered the same way. (I had assumed that FD theaters didn't like variable pricing because they didn't have the ability to track attendance or revenue by film. I believe this is true for a great many smaller FD theaters, especially those attached to a school or college, but this study reveals it's not true for the larger FD theaters).

About one-half of both the GS film and FD segments have been experiencing flat year-over-year attendance. But the trends are noticeably better for FD theaters, which were much more likely to report annual attendance growth; GS film theaters were more likely to report a decline. This is a curious finding, especially in light of the FD theaters' programming approach and relatively modest marketing budgets. One explanation could be that GS film domes are a more mature segment, with older buildings and more familiar technology, and FD growth is measured and easier to sustain when starting from a smaller base. It could also be explained by the general improvement in production values and quality of FD shows over the last few years.

Convergence of display platforms

Of those who answered the open-ended question about "the changes planned to your dome theater system," most of the GS film theaters talked generically about an upgrade to digital or laser digital. (Almost one in five of our GS film respondents reported already having a FD system.) Only one GS respondent specifically mentioned planning to get a new fulldome system. And this didn't necessarily mean they would exhibit any GS-to-FD films — they could be doing this to add FD-only content. In general, more GS dome theaters than flat screens have been "multiplexing" themselves over the past several years. As I reported in an article for this publication two years ago (*see "Film and Digital Dome Convergence, April 2012*), in a survey of dome theater members of the GSCA, 41% of respondents with a large-format film system also programmed digital media (including fulldome video in several cases) and live presentations. Further, non-film programming was correlated with better-than-average annual attendance at dome theaters that offered GS films.

When FD operators described plans for changes to their projection systems, the most frequent responses were upgrades to existing fulldome systems or replacing existing digital projectors. Of course, none would be looking into GS film-based systems. But it's noteworthy that no fulldome operators mentioned any plans to investigate or install a digital dome solution other than FD, whether from Imax or other integrators.

A digital system vendor or integrator could advance convergence between these two sectors by offering a new digital dome solution that combined FD (4x4) and GS (4x3) formats using no more than two projectors for even the largest domes. It should be a DIGSS-compliant open system (DCI for the 4x3 format capability), to minimize the costs and complexity of distribution for both distributors and theaters. It should also allow for presentation of real-time CG content for presenter-led sessions. Ideally, such a new digital system would incorporate new laser technologies. It could be a big opportunity for an integrator who's up to the challenge!

Good intentions alone will not be enough to accelerate the convergence of digital dome solutions.

Other conclusions

Good intentions alone will not be enough to accelerate the convergence of digital dome solutions. What is needed is a consensus built around open platforms and real standards. All major stakeholders need to weigh in on this.

To make the FD distribution of GS films viable for producers, distributors, and theaters, the relatively high costs and time-consuming complexity of FD distribution must be controlled. The current mess traces to the crazy quilt of the many proprietary FD systems. Distribution standards for the digital dome should be a priority for DIGSS.

At the very least, the potential for further convergence will require IMERSA and GSCA to continue their dialogue. Kudos to both organizations for staging the "Best Practices" session in Denver in March (*see LF Examiner, March-April 2014*). By all accounts, it was a constructive meeting. This dialogue absolutely should continue, with future sessions better timed to maximize participation by interested parties. The **International Planetarium Society** should be a part of the mix, too.

DIGSS (and the work to continue polishing it, such as giving guidance to producers and distributors) can be the vehicle that merges the trade associations' quest to grow the market more efficiently, for everyone's benefit. The GSCA's DIGSS Task Force (of which I am a member) has a good array of tech-savvy and business-savvy people who are knowledgeable about both the GS and FD sectors. The DIGSS refinement process and the convergence opportunity would benefit from more active involvement of major FD and GS vendors, integrators, producers, and distributors.

A final thought. If there is a consistent message I hear from the executive directors of my museum theater clients who are contemplating a digital retrofit of their GS or FD theaters, it is that their theaters must be flexible and multi-use. So convergence doesn't have to mean that one platform wins out. In the end, broad-based convergence may be achieved even if two or more digital platforms and content types co-exist in GS dome screens everywhere.

Paul Fraser is president of Blaze Digital Cinema Works. Blaze's assignments have included digital fulldome distribution and production, and helping both dome and flat screen theaters plan for adding digital solutions. Earlier in his career, he was responsible for several 15/70 dome and flat screen theater operations. Fraser has served on the GSCA and IMERSA boards of directors, and participated in the DIGSS Task Force. He can be reached at www.blazedigitalcinema.com.

*(from **GSCA** on page 1)*

a discussion and demonstration by VFX pioneer **Douglas Trumbull** of the new 3D 4K 120-fps giant-screen process he has developed.

For the first time, the fall conference will not include a showy Oscar-style awards ceremony. According to GSCA executive director **Tammy Seldon**, the ceremony had become a major expense, but was not highly rated in surveys of attendees. Instead, the winners will simply be announced at the opening reception on the evening of the first day.

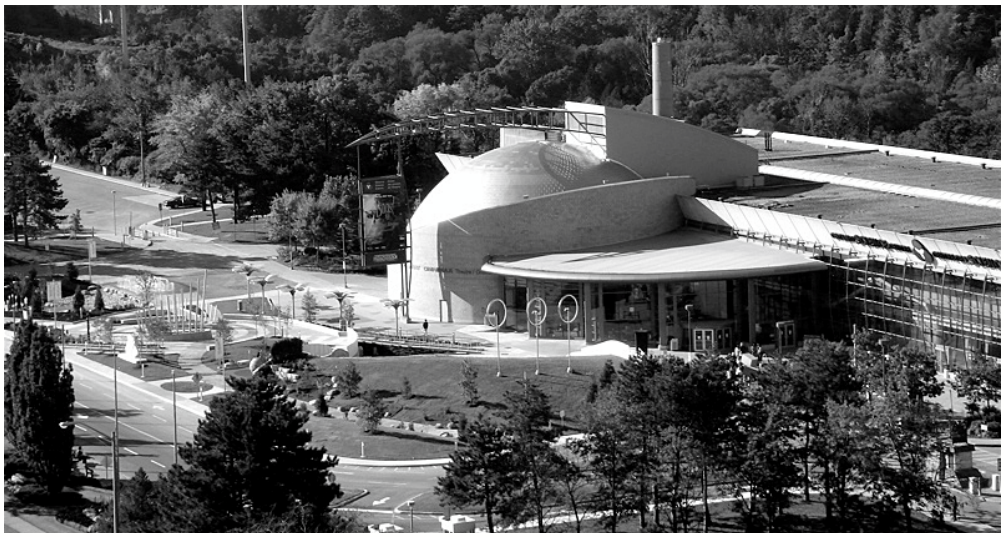
Most sessions will be in downtown Toronto at the conference hotel, the **Sheraton City Centre**, with most screenings a few blocks away at the **Cineplex Scotiabank Theater**, in the 408-seat IMAX auditorium that is equipped with 15/70 film and IMAX digital projectors. The **Ontario Science Centre**, a few miles north of downtown, will host the opening reception and screenings of several new films in its 79-foot (24-meter) IMAX Dome theater.

Technical presentations

For the first time at a fall industry meeting, a laser-illuminated digital projection system will be demonstrated, and unlike the previous demos, the system used will not be a prototype but a production model. The three-primary system, installed by **Electrosonic**, will feature two **Christie** 4K projectors and a **RealD** 3D system. The system is being permanently installed in the **Cineplex Cinemas Queensway**, outside of Toronto. In addition to the demonstration in the Technical Session, it will be used for the screenings of seven new films that day.

In another first, veteran GS cinematographer **James Neihouse** will present footage he captured with five of the top digital cameras and an IMAX 15/65 film camera, in a session called "Bring Back Our Wide Shots." As he writes in a blog post on the GSCA Web site:

> With the move toward digital capture for the giant screen,…traditional wide shots and aerials have suffered. When tiny details become merely indistinct and fuzzy pixel blobs, the power of the breathtaking grandeur of the giant screen is lost.
>
> Many people have asked if there is something we can do to bring back our wide shots in this digital age. This question is important enough to prompt the GSCA Technical Committee to commission a series of digital camera evaluation tests. The goal is not to pick one camera or another, but to present, in an unbiased, real-world test, the best of what the digital world has to offer the giant screen filmmaker.
>
> The digital cameras tested were the Sony F-65, RED Dragon, RED Epic, Arri Alexa XT (open gate), and the Canon C500.
>
> The goal was to shoot all the cameras as in a side-by-side, apples-to-apples test environment. Every camera shot the same test scene, from the same spot, with the same framing and equal exposures. All the digital cameras used the same lens to shoot the test, in order to remove one variable from the equation. The scenes photographed were chosen for their amount of small detail at various distances from the camera.



Ontario Science Centre

Photo by James Koole. *Creative Commons.*

Douglas Trumbull, who created the special effects for such pioneering films as *2001: A Space Odyssey, Close Encounters of the Third Kind,* and *Blade Runner*, and invented the Showscan 70mm/60 fps film system in the 1980s, has developed a patented digital system called Magi. It features 4K 3D images captured and projected at 120 fps, twice the rate of Showscan, which he claims creates "a powerful sense of immersion and impact that is not possible using conventional 24 fps or 3D standards." Trumbull will personally describe the system and screen ***UFOTOG***, a 12-minute sci-fi short he created to highlight its capabilities.

Professional development

The fall meeting will include repeats of several popular professional development sessions, including "Giant Screen 101," which will be split, as it was last year, into two sub-groups: filmmakers and exhibitors; "Giant Screen Wow Moments and Storytelling," with GS veterans **Stephen Low**, **Greg MacGillivray**, and **Toni Myers**; and the perennial marketing session, which has finally been moved from first thing in the morning to early evening, and renamed "Marketing, Merlot, and Martinis." Other sessions include "The Digital Pathway for Domes" and "Alternative Content: What's It All About?" both moderated by **Paul Fraser** of **Blaze Digital Cinema Works**, and "Mastering the Giant Screen Workflow," moderated by **Christian Fry** of **Pretend Entertainment**.

For more information and to register, visit giantscreencinema.com.

GSCA Conference and Trade Show Schedule

Friday, September 19: Pre-Conference Day

8:00 am – 8:00 pm	Registration and Information	Sheraton: Elgin
8:00 am – 8:00 pm	Film Rehearsals	Scotiabank Theater and OSC Omnimax
8:30 am – 11:00 am	Board Meeting	Sheraton: Wentworth
11:00 am – 12:45 pm	Committee Meetings:	
	• Conference	Sheraton: Kenora
	• Marketing & Member Services	Sheraton: Huron
1:00 pm – 2:45 pm	Committee Meetings:	
	• Technical	Sheraton: Kenora
	• Lifelong Learning	Sheraton: Wentworth
	• Professional Development	Sheraton: Dufferin
3:00 pm – 5:00 pm	3D Film Interest Group*	Sheraton: Simcoe
3:00 pm – 6:00 pm	Giant Screen Industry 101: Best Practices	
	• Exhibitor-Focused Session	Sheraton: Dominion North
	• Filmmaker-Focused Session	Sheraton: Dominion South
5:00 pm – 6:00 pm	Distributors Interest Group*	Sheraton: Wentworth
6:00 pm – 7:00 pm	New Members, First-Timers Reception	Sheraton: City Hall

Saturday, September 20: Conference Day 1

	Breakfast on your own	
7:15 am – 8:00 am	Walk to Scotiabank Theater	
8:00 am – 11:45 am	Registration and Information	Scotiabank Theater
8:00 am – 8:35 am	***Soldiers' Stories*** (dig)	Scotiabank Theater
8:35 am – 9:10 am	***Watermelon Magic*** (dig)	Scotiabank Theater
9:10 am – 9:55 am	***Antarctica 3D*** (dig)	Scotiabank Theater
9:55 am – 10:40 am	***Walking with Dinosaurs*** (dig)	Scotiabank Theater
10:40 am – 11:30 am	***Tiny Giants 3D*** (dig)	Scotiabank Theater
11:30 am – 11:45 am	Walk to Sheraton	
11:45 am – 1:15 pm	Registration and information	Sheraton: Vide Foyer
11:45 am – 1:15 pm	Member meeting, lunch	Sheraton: Dominion Ballroom
1:15 pm – 1:45 pm	Walk to Scotiabank Theater	
1:45 pm – 5:00 pm	Registration and Information	Scotiabank Theater
1:45 pm – 2:30 pm	***Panama Canal 3D*** (dig)	Scotiabank Theater
2:30 pm – 3:15 pm	***The Great Apes 3D*** (dig)	Scotiabank Theater
3:15 pm – 5:00 pm	Digital Films in Production	Scotiabank Theater
5:00 pm – 5:30 pm	Projects in Development	Scotiabank Theater
5:30 pm	Walk to Sheraton	
6:00 pm	Buses depart for opening reception	
6:40 pm	Welcome, awards	Ontario Science Centre
7:00 pm	Opening Reception	Ontario Science Centre
8:30 pm	IMAX Hall of Fame film: ***Chronos***	Ontario Science Centre
9:30 pm	Buses return to Sheraton	

Sunday, September 21: Conference Day 2

	Breakfast on your own	
8:15 am – 8:45 am	Walk to Scotiabank Theater	
8:30 am – 3:00 pm	Registration and Information	Scotiabank Theater
8:45 am – 9:15 am	15/70 Films in Production	Scotiabank Theater
9:15 am – 10:15 am	***Secret Ocean 3D*** (15/70)	Scotiabank Theater
10:15 am – 10:45 am	Break	Scotiabank Theater
10:45 am – 11:20 am	***Deepsea Challenge*** (dig)	Scotiabank Theater
11:20 am – 12:15 pm	***Aviation: The Invisible Highway*** (dig)	Scotiabank Theater
12:15 pm – 1:45 pm	Euromax Meeting*	TBA
12:15 pm – 1:45 pm	Alternate Content Special Interest Group Meeting*	TBA
12:15 pm – 1:45 pm	Lunch on your own	
1:45 pm – 3:00 pm	Giant Screen Wow Moments	Scotiabank Theater
3:00 pm – 3:30 pm	Walk to Sheraton	
3:30 pm – 6:30 pm	Registration and Information	Sheraton: Lower Concourse
3:30 pm – 4:45 pm	Professional Development Concurrent Sessions	
	• GS Production Workflow	Sheraton: Sheraton Hall A
	• Alternative Content	Sheraton: Osgood Ballroom
4:45 pm – 5:00 pm	Break	Sheraton: Hall D
5:00 pm – 6:30 pm	Marketing, Merlot and Martinis	Sheraton: Osgood
6:30 pm	Walk to theater	
6:45 pm – 7:30 pm	Reception	Scotiabank Theater
7:30 pm – 8:30 pm	***Humpback Whales*** (dig., fine cut)	Scotiabank Theater
8:30 pm	Evening on your own	

Monday, September 22: Conference Day 3

Flat screen presentations are at the Scotiabank Theater simultaneously with dome screen presentations at the Ontario Science Centre throughout the day.

FLAT SCREEN PRESENTATIONS

	Breakfast on your own	
7:45 am	Walk to Scotiabank Theater for films on the flat screen	
8:30 am – 4:00 pm	Registration and Information	Scotiabank Theater
8:30 am – 9:30 am	***D-Day Normandy: 1944*** (15/70)	Scotiabank Theater
9:30 am – 10:30 am	***Journey to the South Pacific*** (15/70)	Scotiabank Theater
10:30 am – 11:30 am	***Pandas: The Journey Home*** (dig)	Scotiabank Theater
11:30 am – 1:00 pm	Lunch on your own	
1:00 pm – 2:00 pm	***Island of Lemurs: Madagascar*** (15/70)	Scotiabank Theater
2:00 pm – 3:00 pm	***Wonders of the Arctic*** (15/70)	Scotiabank Theater
3:30 pm – 4:00 pm	Walk to Sheraton	

DOME SCREEN PRESENTATIONS

	Breakfast on your own	
7:30 am	Buses depart for Ontario Science Centre	
8:00 am – 4:00 pm	Registration and Information	Ontario Science Centre
8:00 am – 9:00 am	***Wonders of the Arctic*** (15/70)	OSC Omnimax
9:00 am – 10:00 am	***Island of Lemurs: Madagascar*** (15/70)	OSC Omnimax
10:00 am – 11:00 am	***D-Day: Normandy 1944*** (15/70)	OSC Omnimax
11:00 am – 12:45 pm	Digital Pathway for Domes	OSC Telus Room
12:45 pm – 1:45 pm	***Journey to the South Pacific*** (15/70)	OSC Omnimax
1:45 pm – 2:45 pm	***Pandas: The Journey Home*** (15/70)	OSC Omnimax
2:45 pm – 3:30 pm	***Mysteries of the Unseen World*** (15/70)	OSC Omnimax
3:30 pm	Buses depart from OSC to return to Sheraton	

ALL DELEGATES

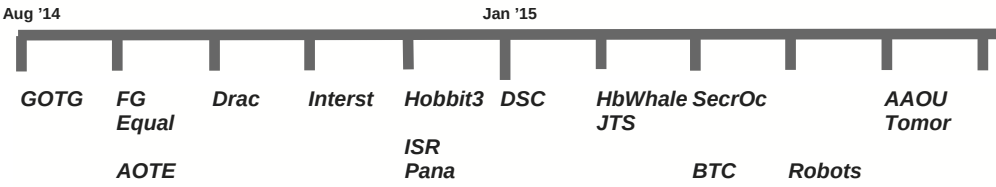
4:00 pm – 8:00 pm	Registration and information	Sheraton: Osgood
4:00 pm – 8:00 pm	Trade show (cocktails, hors d'oeuvres)	Sheraton: Osgood
8:00 pm – 12:00 am	Trade show break down (exhibitors only)	
8:00 pm – 9:30 pm	GSCA Board Meeting	Sheraton: Willow Room East
8:00 pm	Dinner on your own	
10:00 pm – 1:00 am	GSCA Party	Hard Rock Cafe

Tuesday, September 23: Conference Day 4

8:15 am	Buses depart for theater for technical sessions	
9:00 am – 6:00 pm	Registration and Information	
9:00 am – 12:00 pm	Technical Session	Cineplex Cinemas Queensway
	• Laser demonstration	
	• Bringing Back Our Wide Shots	
	• 3D for the Giant Screen	
	• Douglas Trumbull presents *UFOTOG*	
12:00 pm – 1:00 pm	Lunch on your own	
1:00 pm – 1:30 pm	***Star-Spangled Banner*** (dig)	Queensway
1:30 pm – 2:15 pm	***The Turn of This Century*** (dig)	Queensway
2:15 pm – 3:00 pm	***Antarctica's Penguin Emperors*** (dig)	Queensway
3:00 pm – 3:30 pm	***Dark Universe*** (dig)	Queensway
3:30 pm – 4:15 pm	***Remnants*** (dig)	Queensway
4:15 pm – 5:00 pm	***Naya: Legend of the Golden Dolphin*** (dig)	Queensway
5:00 pm – 5:45 pm	***The Life of Trees*** (dig)	Queensway
6:00 pm	Final buses return to Sheraton	

*These special interest groups are privately held meetings and are by invitation only. Special interest groups are run and managed by GSCA members; however, they are not official GSCA groups.

Schedule is subject to change.



All films are 3D unless noted, underlined titles are 2D
* New listing.
Updated information is printed in **bold**.
Unless noted, all films will run about 40 minutes.
Some titles with limited release territories are not listed.

***Forrest Gump* ***
Paramount Pictures; distributor: Paramount Pictures; director: Robert Zemeckis. Cast: Cast: Tom Hanks, Gary Sinise, Robin Wright, Sally Field. 2D. Release: Sept. 5. DMR.

***The Equalizer* ***
Sony Pictures Entertainment; distributor: Sony Pictures Entertainment; director: Antoine Fuqua. Cast: Denzel Washington, Chloë Grace Moretz, Bill Pullman, Melissa Leo. 2D. Release: Sept. 26. DMR.

Dracula Untold
Legendary Pictures; distributor: Universal Pictures; director: James Gunn. Cast: Zoe Saldana, Chris Pratt, Bradley Cooper, Vin Diesel, Josh Brolin, Benicio Del Toro, Glenn Close. 2D. Release: Oct. 17. DMR.

Antarctica on the Edge
Giant Screen Films, Oceans 8 Productions; distributor: Giant Screen Films, D3D Cinema; director: John Bowermaster; producers: Jon Bowermaster, Don Kempf, Andy Wood; DPs: Ken Corbin, Bob Cranston; script: Jon Bowermaster, Mose Richards; score: Alice Wood; original music: Natalie Merchant; executive producer: Gary Smaby. Release: Fall.
– Film is complete.

Interstellar
Paramount Pictures; distributor: Paramount Pictures; director: Christopher Nolan. Cast: Jessica Chastain, Anne Hathaway, Matthew McConaughey, Michael Caine. 2D. Release: Nov. 7. DMR.

The Hobbit*: *The Battle of the Five Armies
WingNut Films; distributor: Warner Bros.; director: Peter Jackson. Cast: Elijah Wood, Cate Blanchett, Hugo Weaving, Stephen Fry, Benedict Cumberbatch, Martin Freeman, Ian McKellen, Andy Serkis. Release: Dec. 17. DMR.

In Saturn's Rings
*SV2 Studios; distributor: BIG & Digital; director, producer, writer, executive producer: Stephen van Vuuren. 2D. **Release: 2014**.*

Panama Canal 3D: A Land Divided, a World United
Large Screen Cinema; distributor: tba; director: Keith Melton; producer: Gordon Bijelonic; associate producer: Jeffrey Kirsch; DP: Reed Smoot. Release: tbd.
– August: Narration recorded.
– Film is complete and will be shown at the GSCA conference in Toronto.

Deepsea Challenge 3D
*Earthship Productions; distributor: National Geographic; directors: John Bruno, Andrew Wight, Ray Quint; producers: **Andrew Wight**, Brett Popplewell; script: Andrew Wight, John Garvin; DPs: Jules O'Loughlin, John Stokes; **score: Ricky Edwards**, **Brett Aplin**, **Amy Bastow**; **executive producers: James Cameron**, **Lisa Truitt**, **Maria Wilhelm**, **Mikael Borglund**; **narrator/cast: James Cameron**. Release: January 2015.*

Humpback Whales (wt)
MacGillivray Freeman Films; distributor: MacGillivray Freeman Films; director: Greg MacGillivray; producer: Shaun MacGillivray; script: Stephen Judson; DPs: Brad Ohlund, Howard Hall, Greg MacGillivray, Ron Goodman; score: Steve Wood. Release: February 2015.

Journey to Space: A Shuttle Adventure (wt)
*K2 Films, Giant Screen Films; distributor: K2, Giant Screen Films; writer, director: Mark Krenzien; DP: Sean Phillips. Cast: astronauts Chris Ferguson, Serena Aunon. **Release: February 2015**.*
– July-August: Filming in Los Angeles, Las Vegas, and Washington, DC.
– Principal photography will wrap in late August.

Secret Ocean 3D (wt)
***Ocean Futures Society**; distributor: 3D Entertainment Distribution; director: Jean-Michel Cousteau; producers: François Mantello, Jean-Jacques Mantello; DP : Gavin McKinney; **script : Pamela Stacey ;** score: Christophe Jacquelin. Cast: Jean-Michel Cousteau. Release: March 2015.*
– Eight filming expeditions in Bahamas, Fiji, Bimini, California have been completed.
– Post production of 15/70 and dome versions under way.

Behind the Cube
*Radiant Images; distributor: tba; **director, writer: Sean Phillips, producers: Brett Ratner, Bobby Mansouri, Michael Mansouri; DP Vilmos Zsigmond; executive producer: Brett Ratner. Release: Spring 2016.***
– August: Filmed US National Rubik's Cube Championship competition at the Liberty Science Center in New Jersey.
– Fall: Filming in Washington state, San Francisco, Japan, London.

Robots
*National Geographic; distributor: National Geographic; **director: Mike Slee**; **producers: Jini Durr**, **Brooke Runette**; **script: Richard Panek**, **Mike Slee**; **DP: Sean Phillips**, **executive producer: Lisa Truitt**. Release: Spring 2015.*

Avengers: Age of Ultron
Walt Disney Pictures; distributor: Walt Disney Pictures; director: Brad Bird. Cast: George Clooney, Judy Greer, Britt Robertson, Hugh Laurie, Kathryn Hahn. Release: May 1, 2015. DMR.

Tomorrowland
Walt Disney Pictures; distributor: Walt Disney Pictures; director: Joss Whedon. Cast: Aaron Taylor-Johnson, Elizabeth Olsen, Scarlett Johansson, Chris Evans, Hayley Atwell, Robert Downey Jr., James Spader, Chris Hemsworth, Cobie Smulders, Samuel L. Jackson. 2D. Release: May 22, 2015. DMR.

Sea of Love
December Cinema Productions; distributor: tba. Release: Mid 2015.

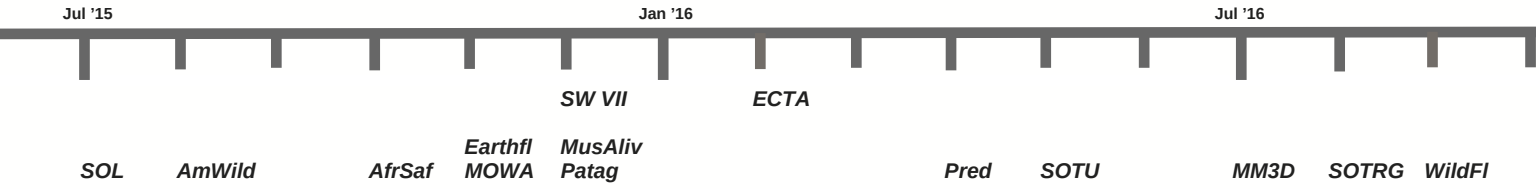
America Wild: U.S. National Parks (wt)
MacGillivray Freeman Films; distributor: MacGillivray Freeman Films; directors: Greg MacGillivray, Shaun MacGillivray; producer: Shaun MacGillivray; script: Tim Cahill; DP: Brad Ohlund; score: Steve Wood. Release: late summer 2015
– Filming in summer, fall, and winter 2014

Star Wars: Episode VII
LucasFilm Ltd; distributor: Walt Disney Pictures; director: J.J. Abrams. Cast: Harrison Ford, Carrie Fisher, Mark Hamill, Andy Serkis, Oscar Isaac, Peter Mayhew, Max von Sydow. Release: Dec. 18, 2015. DMR.

African Safari 3D
nWave Pictures, Studio Cana; distributor: nWave Pictures Distribution; director: Ben Stassen; executive producers: Nadia Khamlichi, Adrian Politowski, Gilles Waterkeyn. Release: tbd.

Earthflight 3D*
An incredible flight across the world on the wings of birds.
John Downer Productions, BBC Earth; distributor: BBC Earth, Giant Screen Films; Release: 2015.
– In post-production.

The Magic of Wild Africa 3D
BBC Earth, Reliance Entertainment; distributor: BBC Earth, Giant Screen Films; directors: Patrick Morris, Neil Nightingale; producers: Neil Nightingale, Myles Connolly, Amanda Hill; DPs: Mark Deeble, Robin Cox; executive producer: Deepak Nayar, Stuart Ford, Marcus Arthur, Mike Newell, Mike Devlin, Miles Ketley. Release: 2015.



– In post-production.

Museum Alive 3D
Atlantic Productions; distributor: tba; director: Daniel M. Smith; producer: Anthony Geffen; script: David Attenborough, Mike Davis; DP: Tim Cragg, Chris Parks; score: Ilan Eshker. Shot in 4K. Cast: David Attenborough. Release: 2015.
– Film was shot in 4K digital for British television. A 40-minute version for 15/70 and digital GS theaters is being prepared.

Patagonia 3D: Into the Wild (wt)
3D Entertainment Films; distributor: 3D Entertainment Distribution; directors/producers: François Mantello, Jean-Jacques Mantello; score : Christophe Jacquelin. Release: 2015.

Everest: Conquering Thin Air (wt)
MacGillivray Freeman Films; distributor: MacGillivray Freeman Films; director: Greg MacGillivray; producer: Shaun MacGillivray; script: Stephen Judson; DPs: Brad Ohlund, Michael Brown, Greg MacGillivray, Jack Tankard, Ron Goodman; score: Steve Wood. Cast: Jamling Norgay, Araceli Segarra. Release: February 2016.

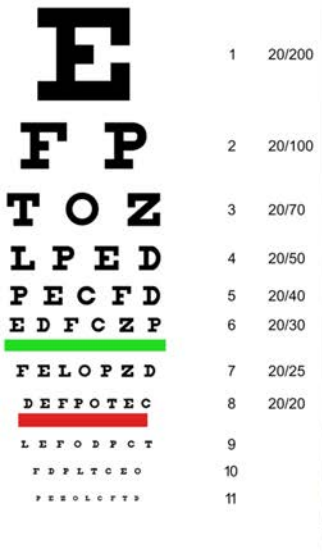
Predator
BBC Earth, Silverback Productions; distributor: BBC Earth, Giant Screen Films;director, producer, writer: Alastair Fothergill; DP:Jamie Mcpherson; executive producer:Neil Nightingale. Release: Spring 2016.
– Summer 2014: filming in Western Australia.

Secrets of the Universe
Stephen Low Company; distributor: K2 Communications; director: Stephen Low; producer: Pietro Serapiglia; DP: Mark Poirier; executive producer: K2 Communications. ***Release: spring 2016.***
– March, April: Filmed at CERN, including inside the collider while it's closed for maintenance.

Micro Monsters 3D: A Visit to the World of Insects
Atlantic Productions; distributor: tba; producers: Anthony Geffen, Sias Wilson; writer: David Attenborough; executive producer: Anthony Geffen. Release: 2016.

Secrets of the Royal Garden (formerly *The Kingdom of Plants*)
Atlantic Productions; distributor: tba; director: Martin Williams; producer: Anthony Geffen; script: David Attenborough; DP: Tim Cragg; score: Joel Douek; executive producer: Anthony Geffen. Shot in 4K. Cast: David Attenborough. Release: 2016.

Wild Flight 3D *
The science behind the beauty and the spectacle of flight in the natural world.
Atlantic Productions; distributor: tba; director: David Lee; producer: Anthony Geffen; writer: David Attenborough; DPs: Paul Williams, Peter Parks, Chris Parks; executive producer: Anthony Geffen. Release: 2016.



Hold the image away so that you can just comfortably read line 8 (20/20). If you can see the water droplets inside the white box at that distance then you can 'resolve' better than 20/20 vision.

Image courtesy Woodland Fine Arts Ltd

See Martin Howe's article starting on page 1.

*(from **EYE CHART** on page 1)*

We can see details far smaller than one arc-minute across. The leaves on a tree, the fur of an animal. The carpet. A hair on the page of a book. Also consider that we do not need to accurately resolve an object and recognize it to see that it is there, that it exists. In fact we typically enjoy the intrigue of getting closer to an object to discover what it is. Fully and clearly resolving an object is quite different to seeing that it's there. If one arc-minute was all that we could see, we would never see the hair on our arms!

Twenty/twenty vision is not the same as "eye-limited resolution." It's easy to understand why these terms get mixed up and interchanged. How we see is a complicated subject and one that this short article cannot fully describe. Part of the complication is that the resolution of the human eye is not an absolute. How much we can see depends upon the viewing conditions. The amount of light and the contrast of the image play an important part. Leaving these variables to one side, it is generally agreed that under optimum viewing conditions the human eye can resolve detail as small as 0.59 arc-minutes per line pair (pair of pixels), which equates to a pixel size of 0.3 arc-minutes. This therefore is the generally accepted figure for "eye limited resolution," more than three times the resolution of 20/20 vision. (*For an example, see the image on page 13.*)

Resolution is an important metric in the flight simulation industry for pilot training applications. A level-D simulator (suitable for commercial aircraft) stipulates a display resolution of only 1.5 arc-minute sized pixels (3 arc-minutes per line pair). This is because pilots need to be able to resolve runway lines that are four feet (1.3 meters) apart at a distance of 6,876 feet (2,100 meters) as they come into land. Fast jet simulators on the other hand are targeting a much more demanding specification of 0.5 arc-minutes per pixel. These fast jet simulators are designed as close as possible to eye-limited resolution so that the pilots can identify fast moving objects in the sky.

By this measure, if we are ever to experience eye-limited resolution in immersive theaters, we would need to capture and display 0.3 arc-minutes of resolution. This equates to 36,000 pixels across the centerline of a dome and 14,400 pixels across a 70-foot giant flat screen when viewed from the central row of seats.

Martin Howe

Furthermore, consider that in a dome every audience member (except one) is closer to some part of the screen than the person in the center, and that the front half of a giant flat screen audience is significantly closer to the screen than the center row. These audience members would need even more pixels on the screen to enjoy eye-limited resolution (in fact up to 22,600 pixels wide from the front row of a 70-foot-wide flat screen).

As of 2014 the current state of the art for domes offers around 6,600 pixel resolution (optimistically referred to as "8K") and for flat screens 4,096 pixels. These specifications are driven by the 4K projection systems now in the market. (Domes use an array of five or six 4K projectors to cover the dome surface.) Once 8K projectors come on-line at comparable prices and at the brightness levels required (probably three to five years away) the capability of flat screens will quickly jump to 8,000 pixels and domes to around 12,000 pixels (assuming that the capture resolution and production workflow can keep up). This may appear unrealistic and out of reach for now, but those of us who can remember marveling at 1280 x 1024 resolution at the turn of the century will know that we soon recalibrate to expect higher resolution once we've experienced it.

Thus far this only considers spatial resolution (how many pixels). Of increasing importance is temporal resolution (how often), otherwise known as frame rate. Frame rates have been quite stable for many years. We have had 24 fps for almost a century and 30 fps for more than 60 years. High frame rate (HFR) systems at 48 fps and 60 fps are in use now and could quickly be overtaken by frame rates as high as 120 fps or even more (*see reference to Douglas Trumbull's new system in the GSCA preview article in this issue*). High frame rates smooth out the strobing or judder that viewers experience, particularly on screens with large fields of view. With 3D systems, HFR can significantly help with edge definition, the means by which we determine the depth of an image using current 3D technologies. HFR can help us see the resolution in the image that is otherwise blurred-out during panning and fast action shots.

The combination of higher frame rates and resolutions approaching eye-limited resolution will help deliver increasingly realistic immersive experiences.

Martin Howe is CEO of TEQ4 Ltd., and a member of the board of directors of the Giant Screen Cinema Association. He was formerly head of giant-screen business development for Electrosonic, and before that was chief executive for Global Immersion from 2007 to 2012. He can be reached at martinh@teq4.com.

*(from **RESEARCH** on page 3)*

organizations contributed additional perspectives on GS, GS industry and STEM. The research perspective was provided by academic researchers from fields such as visual studies, media communication, cognitive studies, and immersion/presence.

Workshop results

The workshop was organized around a series of three questions. The questions asked participants to define the key topics and questions to be addressed in GS research and to identify the constraints and barriers to implementing the research agenda.

In the first breakout, participants were asked to develop a list of the broad areas and topics that should be used to drive GS research. Participants defined five key categories for a research agenda: audience, impact (measures and outcomes), learning, technology (GS attributes and characteristics), and industry. Participants commented that any research agenda should consider whom this research is for (e.g., filmmakers, distributors, theaters, exhibitors, funders), what research can be most easily undertaken (what do we really want to do?), and ensure the sharing of data and evidence among GS stakeholders.

In the second breakout, participants were asked to identify three to five specific research questions from these categories.

Finally, in the third breakout, participants were seated with colleagues with similar experience. This last breakout asked participants to consider the pragmatics — the nuts and bolts — that need to be considered in developing and implementing research programs: barriers, opportunities, justifications, funding etc.

Next steps

To be accepted, a research agenda should develop from broad input from industry. The workshop was the first step in developing and implementing the research agenda. In September the draft report will be released for public comment at the GSCA's Conference and Trade show in Toronto, Canada. Announcements of the report's availability will be made by GSCA, ASTC and **IMERSA** on their respective Web sites, and on the Informal Science Connecting Practice to Research Web site, informalscience.org.

The role of the GS community will be to engage with the report, comment on its results, and support its implementation. To participate in further developments, the GS community is invited to join the ASTC Museum Screens Community of Practice (www.astc.org/profdev/communities/), which will serve as the hub for future efforts in promoting GS research. After 40 years of films, it will be exciting to develop the research data that supports the deep-seated belief of the community that GS films are the GS experience is truly unique and impactful.

Participating organizations

GS Industry:
Giant Screen Cinema Association
Giant Screen Films
Imax Corporation
LF Examiner
MacGillivray Freeman Films
Mensforth and Associates
National Geographic Cinema Ventures
SK Films

Museums:
California Academy of Sciences,
COSI Columbus
Denver Museum of Nature & Scienc
Museum of Discovery and Science
Saint Louis Science Center, MO
Whitaker Center for Science and Arts

Universities:
Arizona State University
Oregon State University
Penn State
Rutgers, the State University of NJ
Univ. of Illinois, Urbana-Champaign
University of New Hampshire
University of New Mexico
University of Pittsburgh

Affiliated organizations:
CAISE
Evans & Sutherland
Meehan Media Consulting
NewKnowledge.org
Public VR
Space Science Institute
White Oak Institute

Worldwide GS and IMAX Theaters

As of August 1, 2014

Note: To avoid double counting, theaters with digital and 15/70 systems are shown as 15/70 only.

C = Commercial Standalone CT = Theme Park
CM = Multiplex I = Institutional

By Format and Operator Type

		C	CM	CT	I	Total
Africa	D		4			4
	8/70				1	
	10/70				1	1
	15/70					
	Total		4		2	6
Asia/Pac	D		208	1	20	229
	8/70	1			9	10
	10/70				9	9
	15/70	2	3	1	28	34
	Total	3	211	2	66	282
Europe	D	2	97	2	3	104
	8/70	1		1	6	8
	15/70	6	1	5	10	22
	Total	9	98	8	19	134
Middle East	D		8			8
	8/70					
	15/70	2			2	4
	Total	2	8		2	12
North America	D	4	310	1	38	353
	8/70	3			11	14
	15/70	10	43		72	125
	Total	17	353	1	121	492
South America	D	1	14		1	16
	8/70				1	1
	15/70	1				1
	Total	2	14		2	18
World	D	7	641	4	62	714
	8/70	5		1	28	34
	10/70				10	10
	15/70	21	47	6	112	186
	Total	33	688	11	212	944

By 2D / 3D

	2D	3D	Total
Africa	2	4	6
Asia/Pac	54	228	282
Europe	20	114	134
ME	1	11	12
NA	72	420	492
SA	1	17	18
Total	150	794	944

By Screen

	Dome	Flat	Comb	Total
Africa	2	4		6
Asia/Pac	47	235		282
Europe	14	118	2	134
ME	1	11		12
NA	49	443	2	492
SA	2	16		18
Total	115	825	4	944

Bookings: Summer 2014 by Film

507 bookings of 80 films in 184 theaters

These listings to not include Hollywood films shown in multiplex IMAX theaters. Those films are listed when they are shown in non-multiplex theaters, and conversely, non-Hollywood giant-screen films showing on multiplex IMAX screens are also listed.

Listings shown in **bold face** below are new or updated listings. The rest are unchanged from the previous month's issue.

The data on the following pages are ***not*** warranted to be comprehensive or accurate in every detail, despite our best efforts to make them so. They have been compiled from theater surveys, distributors, the Web, and other sources.

We will make every effort to improve the thoroughness, and accuracy of these data. If your theater or film is not shown here, please get in touch with us to update our listings.

Where a date is not shown, it means that no date was provided by the source or, in the case of a closing date, that no date has been set, or that the run is indefinite.

The key to film abbreviations is on page 21.

Film	Theater	Open	Close
AfricAdv	Katowice CC	10/4/13	10/3/14
	Krakow CC	10/4/13	10/3/14
	Lodz CC	10/4/13	10/3/14
	Poznan CC	10/4/13	10/3/14
	Warsaw CC	10/4/13	10/3/14
AirRacer	Berlin CS II	1/1/13	7/1/14
Alamo	San Antonio 2D AMC		
Alaska	San Diego RHF	3/14	9/14
Alps	Davenport Put	2/22/14	2/22/15
Amazon	Hartberg	10/1/13	12/31/14
Animalop	Hartford CSC	4/12/14	8/31/14
	Kuwait SCK	9/6/13	9/6/14
Arabia3D	Mexicali	3/28/14	3/27/15
BTBW	**San Diego RHF**	**7/1/14**	**7/31/14**
Bugs	**Edmonton TWS**	**12/26/13**	**12/31/14**
	Vancouver TWS	**3/11/06**	**6/30/15**
CRA	Hartberg	10/1/13	12/31/14
CV	Alexandria BA	10/1/13	12/31/14
D-Day	Austin TSHM	5/1/14	12/31/14
	Chantilly	5/23/14	12/31/14
	Charlotte DP	8/22/14	12/31/14
	Chicago MSI	5/23/14	12/31/14
	Columbus GA NIM	5/23/14	12/31/14
	Copenhagen	4/7/14	12/31/14
	Dayton	5/24/14	12/31/14
	Dearborn THF	3/28/14	12/31/14
	Denver MNS	5/24/14	12/31/14
	Edmonton TWS	5/23/14	12/31/14
	Gatineau	4/4/14	12/31/14
	Hampton VASC	5/23/14	12/31/14
	Houston MNS	5/23/14	12/31/14
	Huntsville USSRC	4/11/14	12/31/14
	Hutchinson	4/21/14	12/31/14
	Indianapolis Imx	5/9/14	12/31/14
	Lehi	5/23/14	12/31/14
	Louisville KSC	5/23/14	12/31/14
	Lubbock SS	5/1/14	12/31/14
	McMinnville	5/23/14	12/31/14
	Paris Geo	**4/2/14**	**12/31/15**
	Raleigh	5/23/14	12/31/14
	Saint Augustine	5/23/14	12/31/14
	Saint Louis SC	4/25/14	12/31/14
	Seattle PSC 2	3/29/14	12/31/14
	Singapore DC	4/1/14	12/31/14
	Sioux Falls	5/1/14	12/31/14
	Victoria DCI	3/21/14	12/31/14
	Washington NASM	5/23/14	12/31/14
DIA	Hartberg	10/1/13	12/31/14
DinoAliv	Harrisburg	5/17/13	7/31/14
	Sydney WBS	12/30/13	12/30/14
	Tampa MOSI	2/7/14	2/4/15
Dolphins	Oklahoma City SMO	3/7/14	9/1/14
DPTP	**Baton Rouge LASM**	**9/12**	**9/15**
	Baton Rouge LASM	1/13	9/14
	Jersey City	**10/13**	**4/15**
	Killeen	**5/12**	**5/15**
	Killeen	1/13	12/14
	Koriyama	11/13	11/14
	Louisville KSC	**6/14**	**6/15**
	Lubbock SS	1/14	12/14
	Sioux Falls	4/14	12/14
	Taipei AM	9/13	9/14
	Tallahassee CLC	**9/12**	**6/15**
Dragons	**Guayaquil**	**5/1/14**	**5/5/15**
	Salt Lake City Clark	6/22/13	5/1/15
DS3D	San Diego RHF	11/13	10/14
EarthWin	Auckland Sky	2/14	2/15
	Guayaquil	3/14	2/15
	Melbourne MV	8/29/13	8/28/14
	Vulcania	3/14	2/15
Everest	Athens Eug	10/1/13	10/31/14
	Hartberg	10/1/13	12/31/14
	Poitiers Imax	**5/31/14**	**1/31/15**
FightPil	Chantilly	12/10/04	7/15
	Corpus Christi Lex	5/12/12	7/15
	Dayton	3/1/13	6/30/15
	Huntsville USSRC	7/1/13	7/1/15
	McMinnville	3/23/12	7/1/15
	Pensacola NAM	6/8/11	7/15
	Seattle PSC 2	6/14/13	6/14/15
FlyMons	Edmonton TWS	12/26/13	12/12/14
	Erie	7/13/13	7/12/14
	Fort Worth	2/14/14	8/31/14
	Los Angeles CSC	5/1/14	7/30/14
	Stockholm	5/19/13	12/31/14
FMTTM	**Kuwait SCK**	**4/17/14**	**10/15/14**
	Penrith	**7/1/14**	**9/7/14**
FON	Edmonton TWS	12/26/13	12/31/14
	Los Angeles CSC	5/1/14	7/30/14
	Pittsburgh CSC	6/1/13	12/31/14
FOTB	Bogota Mal	4/1/13	2/1/15
	Calgary TS	6/18/13	12/31/14
	Chattanooga TA	10/5/12	10/1/14
	Chicago MSI	2/28/14	8/31/14
	Cincinnati MC	**2/14/13**	**6/20/15**
	Cleveland	11/27/13	11/26/14
	Dallas PMNS	5/28/14	10/31/14
	Davenport Put	2/15/13	8/10/14
	Dearborn THF	**2/18/13**	**6/12/15**
	Des Moines	**7/1/13**	**9/5/14**
	Detroit MSC	1/11/14	7/31/14
	Edmonton TWS	12/26/13	12/31/14
	Fort Lauderdale	**2/8/13**	**2/7/15**
	Gatineau	10/5/12	10/4/14
	Greensboro	6/1/13	1/9/15
	Guangzhou MoW	9/15/12	9/14/14
	Hampton VASC	**3/29/13**	**12/31/14**
	Harrisburg	2/1/13	1/31/15
	Hastings	**3/17/13**	**6/12/15**
	Hong Kong SM	5/1/14	10/1/14
	Kuwait SCK	10/26/12	7/25/14
	London BFI	**9/6/13**	**8/1/14**
	Melbourne MV	**3/21/13**	**3/20/15**
	Memphis Pink	3/1/14	5/22/15
	Mobile	**1/14/14**	**8/31/15**
	Orlando SC	3/1/14	2/28/15
	Pittsburgh CSC	3/15/13	12/31/14
	Raleigh	**10/19/12**	**6/30/15**
	Sacramento Imx	8/13/13	6/30/15
	Saint Augustine	1/18/13	12/31/14
	Salt Lake City Clark	2/8/13	10/10/14
	San Diego RHF	**10/12/12**	**6/30/15**
	San Jose Tech	2/9/13	6/30/15
	Seattle PSC 2	10/19/12	9/14
	Sudbury	**6/17/13**	**7/30/15**
	Suzhou SCAC	3/31/14	3/31/15
	Tallahassee CLC	1/18/13	12/31/14
	Tampa MOSI	**2/8/13**	**6/30/15**
	Toronto OSC	**4/8/13**	**10/31/14**
	Vancouver TWS	**3/6/13**	**12/31/14**
	Victoria DCI	**4/5/13**	**6/30/15**
	Washington NMNH	10/5/12	9/30/14
G3DNW	Berlin CS	4/20/14	10/19/15
	Budapest CC	**4/24/14**	**4/23/15**
	Chattanooga TA	5/23/14	10/2/14
	Copenhagen	2/8/14	2/7/15
	Galveston	5/24/14	8/21/14
	Garza Garcia	3/14/14	9/21/14
	Guayaquil	4/20/14	4/19/15
	Houston MNS	2/15/14	12/31/14
	Jersey City	**7/4/14**	**1/3/15**
	Karlsruhe	**4/24/14**	**9/30/15**
	Katowice CC	**6/18/14**	**9/18/15**
	Krakow CC	**6/18/14**	**9/18/15**
	Lodz CC	**6/18/14**	**9/18/15**
	Lucerne	**6/5/14**	**6/4/15**
	Montreal SC	2/10/14	2/9/15
	Orlando SC	**7/5/14**	**1/14/15**
	Poznan CC	**6/18/14**	**9/18/15**
	Prague CC	**5/22/14**	**5/21/15**
	Seoul 63	7/25/14	11/24/14
	Warsaw CC	**6/18/14**	**9/18/15**
GC	Grand Canyon DCI	11/1/99	12/14
GCA	Ede	7/19/12	7/18/14
	Gatineau	5/1/13	3/30/15
	Paris Geo	**7/1/14**	**6/30/15**
	Peoria RM	8/16/13	8/15/14
	San Diego RHF	4/14	9/14
GP	**Shanghai Dome STM**	**8/31/14**	**8/30/15**
Greece	Kolkata SC	1/15/14	1/14/15
GWS	Atlanta FMNH	6/13/14	6/30/15
	Austin TSHM	8/2/13	8/2/14
	Birmingham AL	8/2/13	8/2/14
	Birmingham UK	9/24/13	12/31/14
	Branson	3/1/14	3/1/15
	Chicago Imx	10/4/13	10/4/14
	Columbus COSI	6/1/14	8/1/15
	Des Moines	**6/6/14**	**12/31/15**
	Erie	6/6/14	6/30/15
	Galveston	**6/28/14**	**6/30/15**
	Houston MNS	**8/2/13**	**7/31/15**

Film	Theater	Open	Close
	Hutchinson	5/1/14	5/31/15
	Jersey City	10/4/13	10/4/14
	Kuwait SCK	10/15/13	10/15/14
	Lehi	9/6/13	9/3/14
	Lubbock SS	7/5/13	7/5/14
	Melbourne MV	12/31/13	12/31/14
	Mexico City Pap	7/5/13	7/5/14
	New Orleans	5/24/13	9/30/14
	New York AMNH	7/7/14	1/7/15
	Norwalk	10/4/13	10/4/14
	Peoria RM	**7/1/14**	**7/1/15**
	Philadelphia FI	7/1/14	7/1/15
	Pittsburgh CSC	6/13/14	6/30/15
	Portland OMSI I	11/29/13	11/29/14
	Richmond SMV	3/15/14	3/15/15
	Saint Augustine	**8/9/13**	**9/8/15**
	Sioux Falls	9/1/13	9/1/14
	Sydney WBS	12/30/13	12/30/14
	Tallahassee CLC	**6/15/13**	**1/17/15**
	Tampa MOSI	5/24/13	9/30/14
	Toronto OSC	10/4/13	10/4/14
	Victoria DCI	1/14/14	1/14/15
	Virginia Beach AMSC	5/29/14	5/31/15
HaunCast	New Orleans	9/15/13	11/15/14
HCBTD	San Simeon DCI	8/17/96	
HidUniv	Aguascalientes	2/28/14	2/27/15
	Atlanta FMNH	9/6/13	9/5/14
	Chantilly	1/30/14	
	Cincinnati MC	6/13/14	10/12/14
	Dayton	5/1/14	4/30/15
	Glasgow	5/2/14	5/1/15
	Hampton VASC	10/12/13	10/11/14
	Hong Kong SM	**7/1/14**	**12/31/14**
	Melbourne HCL	9/1/13	8/31/14
	Salt Lake City Clark	7/18/14	7/17/15
	San Diego RHF	**7/4/14**	**7/3/15**
	San Jose Tech	9/7/13	9/6/14
	Seattle PSC 2	1/10/14	1/9/15
	Spokane RP	3/7/14	9/30/14
	Stockholm	**9/15/13**	**12/31/14**
	Sydney WBS	9/1/13	8/31/14
	Tallahassee CLC	2/14/14	2/13/15
	Tampa MOSI	10/25/13	10/24/14
	Toulouse CDE	2/1/14	1/31/15
	Valencia Spn	4/1/14	3/31/15
	Victoria DCI	10/25/13	10/24/14
	Washington NASM	1/30/14	
Hubble3D	Salt Lake City Clark	3/19/10	7/17/14
HumanBod	Boston MOS	11/16/13	11/15/14
	Shreveport	9/1/13	8/28/14
	Stockholm	1/1/12	12/31/14
IOLM	Apple Valley Imx	4/4/14	
	Atlanta FMNH	4/4/14	
	Atlantic City	4/4/14	
	Bangkok Par Maj	5/29/14	
	Bangkok Pin Maj	5/29/14	
	Bangkok Rat Maj	5/29/14	
	Birmingham AL	4/4/14	
	Boston NEA	4/4/14	
	Branson	4/4/14	
	Chicago Imx	4/4/14	
	Cleveland	4/4/14	
	Columbus GA NIM	4/4/14	
	Denver MNS	6/6/14	
	Des Moines	4/4/14	
	Edmonton TWS	4/4/14	
	Fort Lauderdale	4/4/14	
	Fort Worth	4/4/14	
	Hampton VASC	4/4/14	
	Hat Yai Maj	5/29/14	
	Indianapolis Imx	4/4/14	
	Jersey City	4/4/14	
	Los Angeles CSC	4/4/14	
	Melbourne MV	6/19/14	
	Montreal SC	4/28/14	
	New Orleans	4/4/14	
	New York Emp AMC	4/4/14	
	Norwalk	4/4/14	
	Omaha Zoo	4/4/14	
	Pensacola NAM	4/4/14	
	Quebec	4/4/14	
	Raleigh	4/4/14	
	Regina	4/4/14	
	Sacramento Imx	4/4/14	
	Saint Augustine	4/4/14	
	Saint Louis SC	5/23/14	
	Salt Lake City Clark	4/4/14	4/3/15
	San Jose Tech	4/4/14	
	Seattle PSC 2	4/4/14	
	Shreveport	4/4/14	
	Spokane RP	4/4/14	
	Sudbury	4/4/14	
	Syracuse MOST	4/4/14	
	Tallahassee CLC	4/4/14	
	Tampa MOSI	4/4/14	
	Victoria DCI	5/16/14	
	Washington NMNH	4/4/14	
Jerusale	Albuquerque NMMNH	3/2/14	12/31/14
	Birmingham AL	5/23/14	11/23/15
	Boston MOS	9/20/13	9/19/14
	Branson	3/1/14	6/2/15
	Columbus GA NIM	10/18/13	10/17/14
	Davenport Put	11/8/13	10/31/14
	Dearborn THF	2/8/14	2/7/15
	Denver MNS	2/14/14	2/13/15
	Edmonton TWS	12/26/13	12/31/14
	Garden City	9/28/13	9/27/14
	Gatineau	9/27/13	9/26/14
	Grand Rapids Cel	10/18/13	12/31/14
	Hague	3/31/14	3/30/15
	Hastings	11/7/13	11/6/14
	Houston MNS	10/4/13	10/1/14
	Hutchinson	9/20/13	9/1/14
	Lehi	10/18/13	10/17/14
	London BFI	1/1/14	12/31/14
	Lubbock SS	10/11/13	9/30/14
	McMinnville	9/27/13	9/26/14
	Melbourne MV	4/1/14	4/30/15
	Memphis Pink	4/12/14	5/22/15
	Paris Geo	10/15/13	10/14/14
	Pittsburgh CSC	3/7/14	3/6/15
	Raleigh	2/21/14	2/20/15
	Saint Augustine	2/28/14	2/27/15
	Saint Louis SC	10/4/13	9/27/14
	Salt Lake City Clark	11/22/13	9/4/14
	Seattle PSC 2	9/27/13	9/26/14
	Speyer Dome	12/12/13	12/11/14
	Sudbury	4/19/14	4/13/15
	Sydney WBS	2/1/14	1/31/15
	Toronto OSC	3/7/14	12/31/14
JTM	**Beijing CFM**	**1/1/14**	**12/31/14**
	Kuwait SCK	**10/11**	**9/14**
JTTSP	Atlanta FMNH	1/24/14	1/13/15
	Boston MOS	1/17/14	1/23/15
	Charlotte DP	6/13/14	6/12/15
	Chattanooga TA	3/7/14	3/6/15
	Cincinnati MC	1/17/14	1/16/15
	Cleveland	5/23/14	5/22/15
	Denver MNS	2/14/14	2/13/15
	Detroit MSC	6/14/14	6/13/15
	Fort Lauderdale	1/17/14	1/16/15
	Galveston	2/14/14	2/13/15
	Gatineau	1/31/14	7/31/14
	Hague	**7/1/14**	**6/30/15**
	Harrisburg	1/24/14	1/23/15
	Norwalk	**7/1/14**	**10/8/15**
	Paris Geo	5/16/14	5/15/15
	Port of Spain	2/6/14	2/5/15
	Puebla	2/14/14	2/13/15
	Raleigh	12/21/13	12/20/14
	Saint Augustine	8/1/13	7/31/15
	San Diego RHF	3/14	9/14
	San Jose Tech	1/11/14	6/30/15
	Seattle PSC 2	1/24/14	1/23/15
	Stockholm	2/14/14	2/13/15
	Vancouver TWS	5/17/14	
Kenya	Gatineau	9/27/13	3/31/15
	Lucerne	9/1/13	9/1/14
	New Orleans	5/30/14	12/31/14
	Spokane RP	3/1/14	12/31/14
L&C	Davenport Put	2/22/14	2/22/15
	Washington NMNH	1/1/13	12/31/14
LastReef	Berlin CS	7/5/13	7/5/14
	Calgary TS	5/26/12	7/6/14
	Daqing	7/5/13	7/5/14
	Davenport Put	2/1/13	2/1/15
	Hartford CSC	3/1/13	9/1/14
	Hutchinson	10/5/12	9/30/14
	Indianapolis Imx	10/4/13	10/4/14
	Las Palmas	3/1/13	9/1/14
	Louisville KSC	2/8/14	1/9/15
	Lucerne	**6/7/13**	
	Mexicali	6/30/12	7/6/14
	Peoria RM	2/1/14	10/31/14
	Phoenix ASC	1/18/14	1/18/15
	Quebec	10/15/12	10/4/14
	San Antonio 3D AMC	10/4/13	10/4/14
	Seoul 63	7/5/13	7/5/14
	Sioux Falls	10/1/12	10/10/14
	Tallahassee CLC	1/17/14	1/17/15
	Valencia Spn	7/5/13	7/5/14
LivingSe	Beijing Dome CSTM	1/1/14	1/1/15
	Hartberg	10/1/13	12/31/14
LOF	La Coruna	12/1/13	12/1/14
	Las Palmas	3/15/13	2/28/15
	McMinnville	3/23/12	6/18/15
Meerkats	Edmonton TWS	12/26/13	12/31/14
MOF	Pensacola NAM	11/8/96	
MOTGL	**Detroit MSC**	**12/26/12**	**12/31/14**
	Erie	**1/1/14**	**12/31/14**
	Grand Rapids Cel	**10/1/12**	**12/31/14**
	Lansing Cel	**10/1/12**	**12/31/14**
	Portage Cel	**10/1/12**	**12/31/14**
MOTN	Alexandria BA	10/1/13	12/31/14
	Valencia Spn	1/1/12	12/31/14
MOTUW	Albuquerque NMMNH	1/2/14	1/1/15
	Dallas PMNS	11/1/13	10/31/14
	Davenport Put	2/1/14	2/1/15
	Denver MNS	11/1/13	10/31/14
	Erie	3/14/14	3/13/15
	Hastings	6/3/14	6/2/15
	Kuwait SCK	1/27/14	2/1/15
	Lehi	12/20/13	12/19/14
	Melbourne MV	3/24/14	3/24/15
	Orlando SC	11/1/13	11/30/14
	Pittsburgh CSC	1/2/14	1/1/15
	Portland OMSI	11/29/13	11/17/14

Film	Theater	Open	Close
	Raleigh	11/1/13	10/31/14
	San Diego RHF	11/8/13	10/31/14
	Sydney WBS	2/14/14	2/15/15
Mummies	Portland OMSI	1/1/14	1/1/15
	San Diego RHF	**6/1/14**	**6/30/15**
ND	New Delhi ICC		
Niagara	Niagara Can DCI	7/1/86	
	Niagara NY DCI	5/1/07	
Ozarks	Branson	9/93	12/14
Penguins	Baltimore MSC	6/22/14	6/30/15
	Beijing CFM	1/1/14	1/1/15
	Birmingham UK	11/1/13	10/31/14
	Boston NEA	5/24/13	1/1/15
	Dearborn THF	4/18/14	4/17/15
	Galveston	3/4/14	8/21/14
	Garza Garcia	6/12/14	12/12/14
	Gatineau	12/20/13	12/19/14
	Hamaoka	**8/1/14**	**9/30/14**
	Hong Kong SM	3/1/14	8/31/14
	Indianapolis Imx	6/27/14	12/26/14
	Kuwait SCK	**8/9/13**	**11/8/14**
	London BFI	9/6/13	9/5/14
	London SM	7/22/13	7/21/14
	Lubbock SS	3/1/14	8/31/14
	Lucerne	3/14/14	3/13/15
	Omaha Zoo	**8/26/14**	**7/31/15**
	Orlando SC	**9/4/13**	**9/13/14**
	Phoenix ASC	11/22/13	11/21/14
	Seoul 63	**7/21/14**	**11/20/14**
Rescue	Beijing CFM	1/14	1/15
	Davenport Put	6/24/12	3/31/15
	Dongguan STM	3/14/14	2/28/15
	McMinnville	6/1/12	5/31/15
	Shanghai Dome STM	6/30/13	7/2/14
Rheged	Penrith	7/1/00	
RME	Boston MOS	5/1/13	10/31/14
	Salt Lake City Clark	8/22/13	9/4/14
ROF	Philadelphia FI	10/1/13	9/30/14
SAA	Taichung NMNS	7/1/14	6/30/15
SeaMonst	Davenport Put	2/22/14	2/22/15
	Edmonton TWS	12/26/13	12/31/14
SeaRex	Berlin CS II	1/1/12	7/1/14
Sharks3D	Taipei MCRC	1/1/14	12/31/14
SpacJunk	Birmingham UK	1/1/12	1/1/15
	Guangzhou MoW	5/1/13	10/31/14
	Hastings	**9/13/13**	
	Mobile	4/1/14	10/31/14
	Tallahassee CLC	2/10/12	3/18/15
TA	Birmingham AL	1/6/14	1/6/15
	Erie	3/14/13	9/15/14
	Hastings	1/15/14	6/30/15
	Kansas City Sci	4/5/13	10/5/14
	Louisville KSC	2/8/14	1/10/15
	Memphis Pink	3/8/14	3/8/15
ToFly	Lucknow	5/1/14	11/30/14
	Mumbai	6/1/14	12/31/14
	Washington NASM	7/1/76	
TOTIA	Al Khobar	6/1/14	6/1/15
	Albuquerque NMMNH	8/2/13	8/31/14
	Austin TSHM	11/1/13	11/1/14
	Baltimore MSC	2/1/14	2/1/15
	Berlin CS	9/6/13	9/6/14
	Birmingham AL	11/5/13	11/5/14
	Birmingham UK	9/24/13	12/31/14
	Copenhagen	12/12/13	12/12/14
	Dallas PMNS	11/15/13	11/15/14
	Davenport Put	2/1/14	2/1/15
	Erie	10/4/13	10/4/14
	Galveston	11/15/13	11/15/14
	Harrisburg	5/29/14	5/31/15
	Hastings	**2/1/13**	**6/30/15**
	Hong Kong SM	9/1/13	9/1/14
	Houston MNS	1/25/13	6/30/15
	Hutchinson	3/1/13	6/30/15
	Indianapolis Imx	11/15/13	11/15/14
	Lehi	**6/20/14**	**5/31/15**
	Louisville KSC	11/28/13	12/31/14
	Louisville KSC	2/8/14	11/28/14
	Montreal SC	9/6/13	9/6/14
	Moscow BFC	10/15/13	10/31/14
	Orlando SC	10/4/13	10/4/14
	Parker	10/4/13	10/4/14
	Philadelphia FI	1/1/14	12/31/14
	Quebec	9/6/13	9/6/14
	Raleigh	2/1/13	8/1/14
	Saint Félicien	5/1/14	5/1/15
	Saint Louis SC	1/15/14	1/15/15
	San Diego NHM	7/5/13	7/5/14
	Seattle PSC 2	10/4/13	10/4/14
	Seoul 63	9/1/13	12/31/14
	Singapore SC	8/2/13	8/2/14
	Spokane RP	5/15/14	5/15/15
	Stockholm	11/29/13	11/29/14
	Tijuana	11/28/13	11/28/14
	Victoria DCI	8/30/13	5/31/15
	Washington NMNH	10/18/13	10/31/14
	Yellowstone	5/1/14	5/31/15
TTA	Berlin CS	9/6/13	9/6/14
	Budapest CC	10/4/13	10/4/14
	Copenhagen	12/12/13	12/12/14
	Grand Rapids Cel	10/4/13	10/4/14
	Kuwait SCK	10/4/13	10/4/14
	Paris Geo	10/4/13	10/4/14
	San Antonio 3D AMC	10/4/13	10/4/14
	Shreveport	10/4/13	10/4/14
	Sinsheim	10/4/13	10/4/14
UWT3D	Gatineau	5/1/14	4/30/15
	Raleigh	2/2/14	4/2/15
	Washington NMNH	3/15/13	3/31/15
VanGogh	Charlotte DP	4/25/14	4/24/15
Vulcania	Vulcania	2/22/02	
WATE	Katoomba	6/1/97	
WildOcea	Galveston	5/3/14	8/31/14
	Milwaukee	11/29/13	11/29/14
	Portland OMSI	1/15/14	1/15/15
WM	Denver CC Reg	6/1/14	9/30/14
	Louisville KSC	2/8/14	12/31/14
	Philadelphia FI	**4/12/14**	**10/12/14**
	Sioux Falls	3/1/14	1/31/15
WOTA	Parker	5/2/14	12/31/14
	Sudbury	3/6/14	3/31/15
WTP	Hastings	3/8/14	9/7/14
	Hutchinson	2/12/14	2/11/15
	Saint Augustine	1/3/14	1/2/15
	Saint Augustine	1/6/14	1/5/15
WTTR3D	Eilat Epic	9/1/12	9/30/14
	Sioux Falls	9/1/13	9/30/14
WWDPP3D	**Philadelphia FI**	**7/1/14**	**12/31/14**
ZionCany	Zion	7/1/08	

Summer 2014 by Theater

Theater	Film	Open	Close
Aguascalientes	HidUniv	2/28/14	2/27/15
Al Khobar	TOTIA	6/1/14	6/1/15
Albuquerque NMMNH		Jerusale	3/2/14
	12/31/14		
	MOTUW	1/2/14	1/1/15
	TOTIA	8/2/13	8/31/14
Alexandria BA	CV	10/1/13	12/31/14
	MOTN	10/1/13	12/31/14
Apple Valley Imx	IOLM	4/4/14	
Athens Eug	Everest	10/1/13	10/31/14
Atlanta FMNH	GWS	6/13/14	6/30/15
	HidUniv	9/6/13	9/5/14
	IOLM	4/4/14	
	JTTSP	1/24/14	1/13/15
Atlantic City	IOLM	4/4/14	
Auckland Sky	EarthWin	2/14	2/15
Austin TSHM	D-Day	5/1/14	12/31/14
	GWS	8/2/13	8/2/14
	TOTIA	11/1/13	11/1/14
Baltimore MSC	Penguins	6/22/14	6/30/15
	TOTIA	2/1/14	2/1/15
Bangkok Par Maj	IOLM	5/29/14	
Bangkok Pin Maj	IOLM	5/29/14	
Bangkok Rat Maj	IOLM	5/29/14	
Baton Rouge LASM	**DPTP**	**9/12**	**9/15**
	DPTP	1/13	9/14
Beijing CFM	**JTM**	**1/1/14**	**12/31/14**
	Penguins	1/1/14	1/1/15
	Rescue	1/14	1/15
Beijing Dome CSTM		LivingSe	1/1/14
	1/1/15		
Berlin CS	G3DNW	4/20/14	10/19/15
	LastReef	7/5/13	7/5/14
	TOTIA	9/6/13	9/6/14
	TTA	9/6/13	9/6/14
Berlin CS II	AirRacer	1/1/13	7/1/14
	SeaRex	1/1/12	7/1/14
Birmingham AL	GWS	8/2/13	8/2/14
	IOLM	4/4/14	
	Jerusale	5/23/14	11/23/15
	TA	1/6/14	1/6/15
	TOTIA	11/5/13	11/5/14
Birmingham UK	GWS	9/24/13	12/31/14
	Penguins	11/1/13	10/31/14
	SpacJunk	1/1/12	1/1/15
	TOTIA	9/24/13	12/31/14
Bogota Mal	FOTB	4/1/13	2/1/15
Boston MOS	HumanBod	11/16/13	11/15/14
	Jerusale	9/20/13	9/19/14
	JTTSP	1/17/14	1/23/15
	RME	5/1/13	10/31/14
Boston NEA	IOLM	4/4/14	
	Penguins	5/24/13	1/1/15
Branson	GWS	3/1/14	3/1/15
	IOLM	4/4/14	
	Jerusale	3/1/14	6/2/15
	Ozarks	9/93	12/14
Budapest CC	**G3DNW**	**4/24/14**	**4/23/15**
	TTA	10/4/13	10/4/14
Calgary TS	FOTB	6/18/13	12/31/14

Theater	Film	Open	Close
	LastReef	5/26/12	7/6/14
Chantilly	D-Day	5/23/14	12/31/14
	FightPil	12/10/04	7/15
	HidUniv	1/30/14	
Charlotte DP	D-Day	8/22/14	12/31/14
	JTTSP	6/13/14	6/12/15
	VanGogh	4/25/14	4/24/15
Chattanooga TA	FOTB	10/5/12	10/1/14
	G3DNW	5/23/14	10/2/14
	JTTSP	3/7/14	3/6/15
Chicago Imx	GWS	10/4/13	10/4/14
	IOLM	4/4/14	
Chicago MSI	D-Day	5/23/14	12/31/14
	FOTB	2/28/14	8/31/14
Cincinnati MC	**FOTB**	**2/14/13**	**6/20/15**
	HidUniv	6/13/14	10/12/14
	JTTSP	1/17/14	1/16/15
Cleveland	FOTB	11/27/13	11/26/14
	IOLM	4/4/14	
	JTTSP	5/23/14	5/22/15
Columbus COSI	GWS	6/1/14	8/1/15
Columbus GA NIM	D-Day	5/23/14	12/31/14
	IOLM	4/4/14	
	Jerusale	10/18/13	10/17/14
Copenhagen	D-Day	4/7/14	12/31/14
	G3DNW	2/8/14	2/7/15
	TOTIA	12/12/13	12/12/14
	TTA	12/12/13	12/12/14
Corpus Christi Lex	FightPil	5/12/12	7/15
Dallas PMNS	FOTB	5/28/14	10/31/14
	MOTUW	11/1/13	10/31/14
	TOTIA	11/15/13	11/15/14
Daqing	LastReef	7/5/13	7/5/14
Davenport Put	Alps	2/22/14	2/22/15
	FOTB	2/15/13	8/10/14
	Jerusale	11/8/13	10/31/14
	L&C	2/22/14	2/22/15
	LastReef	2/1/13	2/1/15
	MOTUW	2/1/14	2/1/15
	Rescue	6/24/12	3/31/15
	SeaMonst	2/22/14	2/22/15
	TOTIA	2/1/14	2/1/15
Dayton	D-Day	5/24/14	12/31/14
	FightPil	3/1/13	6/30/15
	HidUniv	5/1/14	4/30/15
Dearborn THF	D-Day	3/28/14	12/31/14
	FOTB	**2/18/13**	**6/12/15**
	Jerusale	2/8/14	2/7/15
	Penguins	4/18/14	4/17/15
Denver CC Reg	WM	6/1/14	9/30/14
Denver MNS	D-Day	5/24/14	12/31/14
	IOLM	6/6/14	
	Jerusale	2/14/14	2/13/15
	JTTSP	2/14/14	2/13/15
	MOTUW	11/1/13	10/31/14
Des Moines	**FOTB**	**7/1/13**	**9/5/14**
	GWS	**6/6/14**	**12/31/15**
	IOLM	4/4/14	
Detroit MSC	FOTB	1/11/14	7/31/14
	JTTSP	6/14/14	6/13/15
	MOTGL	**12/26/12**	**12/31/14**
Dongguan STM	Rescue	3/14/14	2/28/15
Ede	GCA	7/19/12	7/18/14
Edmonton TWS	**Bugs**	**12/26/13**	**12/31/14**
	D-Day	5/23/14	12/31/14
	FlyMons	12/26/13	12/12/14
	FON	12/26/13	12/31/14
	FOTB	12/26/13	12/31/14
	IOLM	4/4/14	

Theater	Film	Open	Close
	Jerusale	12/26/13	12/31/14
	Meerkats	12/26/13	12/31/14
	SeaMonst	12/26/13	12/31/14
Eilat Epic	WTTR3D	9/1/12	9/30/14
Erie	FlyMons	7/13/13	7/12/14
	GWS	6/6/14	6/30/15
	MOTGL	**1/1/14**	**12/31/14**
	MOTUW	3/14/14	3/13/15
	TA	3/14/13	9/15/14
	TOTIA	10/4/13	10/4/14
Fort Lauderdale	**FOTB**	**2/8/13**	**2/7/15**
	IOLM	4/4/14	
	JTTSP	1/17/14	1/16/15
Fort Worth	FlyMons	2/14/14	8/31/14
	IOLM	4/4/14	
Galveston	G3DNW	5/24/14	8/21/14
	GWS	**6/28/14**	**6/30/15**
	JTTSP	2/14/14	2/13/15
	Penguins	3/4/14	8/21/14
	TOTIA	11/15/13	11/15/14
	WildOcea	5/3/14	8/31/14
Garden City	Jerusale	9/28/13	9/27/14
Garza Garcia	G3DNW	3/14/14	9/21/14
	Penguins	6/12/14	12/12/14
Gatineau	D-Day	4/4/14	12/31/14
	FOTB	10/5/12	10/4/14
	GCA	5/1/13	3/30/15
	Jerusale	9/27/13	9/26/14
	JTTSP	1/31/14	7/31/14
	Kenya	9/27/13	3/31/15
	Penguins	12/20/13	12/19/14
	UWT3D	5/1/14	4/30/15
Glasgow	HidUniv	5/2/14	5/1/15
Grand Canyon DCI	GC	11/1/99	12/14
Grand Rapids Cel	Jerusale	10/18/13	12/31/14
	MOTGL	**10/1/12**	**12/31/14**
	TTA	10/4/13	10/4/14
Greensboro	FOTB	6/1/13	1/9/15
Guangzhou MoW	FOTB	9/15/12	9/14/14
	SpacJunk	5/1/13	10/31/14
Guayaquil	**Dragons**	**5/1/14**	**5/5/15**
	EarthWin	3/14	2/15
	G3DNW	4/20/14	4/19/15
Hague	Jerusale	3/31/14	3/30/15
	JTTSP	**7/1/14**	**6/30/15**
Hamaoka	**Penguins**	**8/1/14**	**9/30/14**
Hampton VASC	D-Day	5/23/14	12/31/14
	FOTB	**3/29/13**	**12/31/14**
	HidUniv	10/12/13	10/11/14
	IOLM	4/4/14	
Harrisburg	DinoAliv	5/17/13	7/31/14
	FOTB	2/1/13	1/31/15
	JTTSP	1/24/14	1/23/15
	TOTIA	5/29/14	5/31/15
Hartberg	Amazon	10/1/13	12/31/14
	CRA	10/1/13	12/31/14
	DIA	10/1/13	12/31/14
	Everest	10/1/13	12/31/14
	LivingSe	10/1/13	12/31/14
Hartford CSC	Animalop	4/12/14	8/31/14
	LastReef	3/1/13	9/1/14
Hastings	**FOTB**	**3/17/13**	**6/12/15**
	Jerusale	11/7/13	11/6/14
	MOTUW	6/3/14	6/2/15
	SpacJunk	**9/13/13**	
	TA	1/15/14	6/30/15
	TOTIA	**2/1/13**	**6/30/15**
	WTP	3/8/14	9/7/14
Hat Yai Maj	IOLM	5/29/14	

Theater	Film	Open	Close
Hong Kong SM	FOTB	5/1/14	10/1/14
	HidUniv	**7/1/14**	**12/31/14**
	Penguins	3/1/14	8/31/14
	TOTIA	9/1/13	9/1/14
Houston MNS	D-Day	5/23/14	12/31/14
	G3DNW	2/15/14	12/31/14
	GWS	**8/2/13**	**7/31/15**
	Jerusale	10/4/13	10/1/14
	TOTIA	1/25/13	6/30/15
Huntsville USSRC	D-Day	4/11/14	12/31/14
	FightPil	7/1/13	7/1/15
Hutchinson	D-Day	4/21/14	12/31/14
	GWS	5/1/14	5/31/15
	Jerusale	9/20/13	9/1/14
	LastReef	10/5/12	9/30/14
	TOTIA	3/1/13	6/30/15
	WTP	2/12/14	2/11/15
Indianapolis Imx	D-Day	5/9/14	12/31/14
	IOLM	4/4/14	
	LastReef	10/4/13	10/4/14
	Penguins	6/27/14	12/26/14
	TOTIA	11/15/13	11/15/14
Jersey City	**DPTP**	**10/13**	**4/15**
	G3DNW	**7/4/14**	**1/3/15**
	GWS	10/4/13	10/4/14
	IOLM	4/4/14	
Kansas City Sci	TA	4/5/13	10/5/14
Karlsruhe	**G3DNW**	**4/24/14**	**9/30/15**
Katoomba	WATE	6/1/97	
Katowice CC	AfricAdv	10/4/13	10/3/14
	G3DNW	**6/18/14**	**9/18/15**
Killeen	**DPTP**	**5/12**	**5/15**
	DPTP	1/13	12/14
Kolkata SC	Greece	1/15/14	1/14/15
Koriyama	DPTP	11/13	11/14
Krakow CC	AfricAdv	10/4/13	10/3/14
	G3DNW	**6/18/14**	**9/18/15**
Kuwait SCK	Animalop	9/6/13	9/6/14
	FMTTM	**4/17/14**	**10/15/14**
	FOTB	10/26/12	7/25/14
	GWS	10/15/13	10/15/14
	JTM	**10/11**	**9/14**
	MOTUW	1/27/14	2/1/15
	Penguins	**8/9/13**	**11/8/14**
	TTA	10/4/13	10/4/14
La Coruna	LOF	12/1/13	12/1/14
Lansing Cel	**MOTGL**	**10/1/12**	**12/31/14**
Las Palmas	LastReef	3/1/13	9/1/14
	LOF	3/15/13	2/28/15
Lehi	D-Day	5/23/14	12/31/14
	GWS	9/6/13	9/3/14
	Jerusale	10/18/13	10/17/14
	MOTUW	12/20/13	12/19/14
	TOTIA	**6/20/14**	**5/31/15**
Lodz CC	AfricAdv	10/4/13	10/3/14
	G3DNW	**6/18/14**	**9/18/15**
London BFI	**FOTB**	**9/6/13**	**8/1/14**
	Jerusale	1/1/14	12/31/14
	Penguins	9/6/13	9/5/14
London SM	Penguins	7/22/13	7/21/14
Los Angeles CSC	FlyMons	5/1/14	7/30/14
	FON	5/1/14	7/30/14
	IOLM	4/4/14	
Louisville KSC	D-Day	5/23/14	12/31/14
	DPTP	**6/14**	**6/15**
	LastReef	2/8/14	1/9/15
	TA	2/8/14	1/10/15
	TOTIA	11/28/13	12/31/14
	TOTIA	2/8/14	11/28/14

Theater	Film	Open	Close
	WM	2/8/14	12/31/14
Lubbock SS	D-Day	5/1/14	12/31/14
	DPTP	1/14	12/14
	GWS	7/5/13	7/5/14
	Jerusale	10/11/13	9/30/14
	Penguins	3/1/14	8/31/14
Lucerne	**G3DNW**	**6/5/14**	**6/4/15**
	Kenya	9/1/13	9/1/14
	LastReef	**6/7/13**	
	Penguins	3/14/14	3/13/15
Lucknow	ToFly	5/1/14	11/30/14
McMinnville	D-Day	5/23/14	12/31/14
	FightPil	3/23/12	7/1/15
	Jerusale	9/27/13	9/26/14
	LOF	3/23/12	6/18/15
	Rescue	6/1/12	5/31/15
Melbourne HCL	HidUniv	9/1/13	8/31/14
Melbourne MV	EarthWin	8/29/13	8/28/14
	FOTB	**3/21/13**	**3/20/15**
	GWS	12/31/13	12/31/14
	IOLM	6/19/14	
	Jerusale	4/1/14	4/30/15
	MOTUW	3/24/14	3/24/15
Memphis Pink	FOTB	3/1/14	5/22/15
	Jerusale	4/12/14	5/22/15
	TA	3/8/14	3/8/15
Mexicali	Arabia3D	3/28/14	3/27/15
	LastReef	6/30/12	7/6/14
Mexico City Pap	GWS	7/5/13	7/5/14
Milwaukee	WildOcea	11/29/13	11/29/14
Mobile	**FOTB**	**1/14/14**	**8/31/15**
	SpacJunk	4/1/14	10/31/14
Montreal SC	G3DNW	2/10/14	2/9/15
	IOLM	4/28/14	
	TOTIA	9/6/13	9/6/14
Moscow BFC	TOTIA	10/15/13	10/31/14
Mumbai	ToFly	6/1/14	12/31/14
New Delhi ICC	ND		
New Orleans	GWS	5/24/13	9/30/14
	HaunCast	9/15/13	11/15/14
	IOLM	4/4/14	
	Kenya	5/30/14	12/31/14
New York AMNH	GWS	7/7/14	1/7/15
New York Emp AMC		IOLM	4/4/14
		9/1/14	
Niagara Can DCI	Niagara	7/1/86	
Niagara NY DCI	Niagara	5/1/07	
Norwalk	GWS	10/4/13	10/4/14
	IOLM	4/4/14	
	JTTSP	**7/1/14**	**10/8/15**
Oklahoma City SMO		Dolphins	3/7/14
Omaha Zoo	IOLM	4/4/14	
	Penguins	**8/26/14**	**7/31/15**
Orlando SC	FOTB	3/1/14	2/28/15
	G3DNW	**7/5/14**	**1/14/15**
	MOTUW	11/1/13	11/30/14
	Penguins	**9/4/13**	**9/13/14**
	TOTIA	10/4/13	10/4/14
Paris Geo	**D-Day**	**4/2/14**	**12/31/15**
	GCA	**7/1/14**	**6/30/15**
	Jerusale	10/15/13	10/14/14
	JTTSP	5/16/14	5/15/15
	TTA	10/4/13	10/4/14
Parker	TOTIA	10/4/13	10/4/14
	WOTA	5/2/14	12/31/14
Penrith	**FMTTM**	**7/1/14**	**9/7/14**
	Rheged	7/1/00	
Pensacola NAM	FightPil	6/8/11	7/15
	IOLM	4/4/14	
	MOF	11/8/96	
Peoria RM	GCA	8/16/13	8/15/14
	GWS	**7/1/14**	**7/1/15**
	LastReef	2/1/14	10/31/14
Philadelphia FI	GWS	7/1/14	7/1/15
	ROF	10/1/13	9/30/14
	TOTIA	1/1/14	12/31/14
	WM	**4/12/14**	**10/12/14**
	WWDPP3D	**7/1/14**	**12/31/14**
Phoenix ASC	LastReef	1/18/14	1/18/15
	Penguins	11/22/13	11/21/14
Pittsburgh CSC	FON	6/1/13	12/31/14
	FOTB	3/15/13	12/31/14
	GWS	6/13/14	6/30/15
	Jerusale	3/7/14	3/6/15
	MOTUW	1/2/14	1/1/15
Poitiers Imax	**Everest**	**5/31/14**	**1/31/15**
Port of Spain	JTTSP	2/6/14	2/5/15
Portage Cel	**MOTGL**	**10/1/12**	**12/31/14**
Portland OMSI	MOTUW	11/29/13	11/17/14
	Mummies	1/1/14	1/1/15
	WildOcea	1/15/14	1/15/15
Portland OMSI I	GWS	11/29/13	11/29/14
Poznan CC	AfricAdv	10/4/13	10/3/14
	G3DNW	**6/18/14**	**9/18/15**
Prague CC	**G3DNW**	**5/22/14**	**5/21/15**
Puebla	JTTSP	2/14/14	2/13/15
Quebec	IOLM	4/4/14	
	LastReef	10/15/12	10/4/14
	TOTIA	9/6/13	9/6/14
Raleigh	D-Day	5/23/14	12/31/14
	FOTB	**10/19/12**	**6/30/15**
	IOLM	4/4/14	
	Jerusale	2/21/14	2/20/15
	JTTSP	12/21/13	12/20/14
	MOTUW	11/1/13	10/31/14
	TOTIA	2/1/13	8/1/14
	UWT3D	2/2/14	4/2/15
Regina	IOLM	4/4/14	
Richmond SMV	GWS	3/15/14	3/15/15
Sacramento Imx	FOTB	8/13/13	6/30/15
	IOLM	4/4/14	
Saint Augustine	D-Day	5/23/14	12/31/14
	FOTB	1/18/13	12/31/14
	GWS	**8/9/13**	**9/8/15**
	IOLM	4/4/14	
	Jerusale	2/28/14	2/27/15
	JTTSP	8/1/13	7/31/15
	WTP	1/3/14	1/2/15
	WTP	1/6/14	1/5/15
Saint Félicien	TOTIA	5/1/14	5/1/15
Saint Louis SC	D-Day	4/25/14	12/31/14
	IOLM	5/23/14	
	Jerusale	10/4/13	9/27/14
	TOTIA	1/15/14	1/15/15
Salt Lake City Clark	Dragons	6/22/13	5/1/15
	FOTB	2/8/13	10/10/14
	HidUniv	7/18/14	7/17/15
	Hubble3D	3/19/10	7/17/14
	IOLM	4/4/14	4/3/15
	Jerusale	11/22/13	9/4/14
	RME	8/22/13	9/4/14
San Antonio 2D AMC		Alamo	
San Antonio 3D AMC		LastReef	10/4/13
	10/4/14		
	TTA	10/4/13	10/4/14
San Diego NHM	TOTIA	7/5/13	7/5/14
San Diego RHF	Alaska	3/14	9/14
	BTBW	**7/1/14**	**7/31/14**
	DS3D	11/13	10/14
	FOTB	**10/12/12**	**6/30/15**
	GCA	4/14	9/14
	HidUniv	**7/4/14**	**7/3/15**
	JTTSP	3/14	9/14
	MOTUW	11/8/13	10/31/14
	Mummies	**6/1/14**	**6/30/15**
San Jose Tech	FOTB	2/9/13	6/30/15
	HidUniv	9/7/13	9/6/14
	IOLM	4/4/14	
	JTTSP	1/11/14	6/30/15
San Simeon DCI	HCBTD	8/17/96	
Seattle PSC 2	D-Day	3/29/14	12/31/14
	FightPil	6/14/13	6/14/15
	FOTB	10/19/12	9/14
	HidUniv	1/10/14	1/9/15
	IOLM	4/4/14	
	Jerusale	9/27/13	9/26/14
	JTTSP	1/24/14	1/23/15
	TOTIA	10/4/13	10/4/14
Seoul 63	G3DNW	7/25/14	11/24/14
	LastReef	7/5/13	7/5/14
	Penguins	**7/21/14**	**11/20/14**
	TOTIA	9/1/13	12/31/14
Shanghai Dome STM		**GP**	**8/31/14**
	8/30/15		
	Rescue	6/30/13	7/2/14
Shreveport	HumanBod	9/1/13	8/28/14
	IOLM	4/4/14	
	TTA	10/4/13	10/4/14
Singapore DC	D-Day	4/1/14	12/31/14
Singapore SC	TOTIA	8/2/13	8/2/14
Sinsheim	TTA	10/4/13	10/4/14
Sioux Falls	D-Day	5/1/14	12/31/14
	DPTP	4/14	12/14
	GWS	9/1/13	9/1/14
	LastReef	10/1/12	10/10/14
	WM	3/1/14	1/31/15
	WTTR3D	9/1/13	9/30/14
Speyer Dome	Jerusale	12/12/13	12/11/14
Spokane RP	HidUniv	3/7/14	9/30/14
	IOLM	4/4/14	
	Kenya	3/1/14	12/31/14
	TOTIA	5/15/14	5/15/15
Stockholm	FlyMons	5/19/13	12/31/14
	HidUniv	**9/15/13**	**12/31/14**
	HumanBod	1/1/12	12/31/14
	JTTSP	2/14/14	2/13/15
	TOTIA	11/29/13	11/29/14
Sudbury	**FOTB**	**6/17/13**	**7/30/15**
	IOLM	4/4/14	
	Jerusale	4/19/14	4/13/15
	WOTA	3/6/14	3/31/15
Suzhou SCAC	FOTB	3/31/14	3/31/15
Sydney WBS	DinoAliv	12/30/13	12/30/14
	GWS	12/30/13	12/30/14
	HidUniv	9/1/13	8/31/14
	Jerusale	2/1/14	1/31/15
	MOTUW	2/14/14	2/15/15
Syracuse MOST	IOLM	4/4/14	
Taichung NMNS	SAA	7/1/14	6/30/15
Taipei AM	DPTP	9/13	9/14
Taipei MCRC	Sharks3D	1/1/14	12/31/14
Tallahassee CLC	**DPTP**	**9/12**	**6/15**
	FOTB	1/18/13	12/31/14
	GWS	**6/15/13**	**1/17/15**
	HidUniv	2/14/14	2/13/15
	IOLM	4/4/14	
	LastReef	1/17/14	1/17/15
	SpacJunk	2/10/12	3/18/15

Theater	Film	Open	Close
Tampa MOSI	DinoAliv	2/7/14	2/4/15
	FOTB	**2/8/13**	**6/30/15**
	GWS	5/24/13	9/30/14
	HidUniv	10/25/13	10/24/14
	IOLM	4/4/14	
Tijuana	TOTIA	11/28/13	11/28/14
Toronto OSC	**FOTB**	**4/8/13**	**10/31/14**
	GWS	10/4/13	10/4/14
	Jerusale	3/7/14	12/31/14
Toulouse CDE	HidUniv	2/1/14	1/31/15
Valencia Spn	HidUniv	4/1/14	3/31/15
	LastReef	7/5/13	7/5/14
	MOTN	1/1/12	12/31/14

Theater	Film	Open	Close
Vancouver TWS	**Bugs**	**3/11/06**	**6/30/15**
	FOTB	**3/6/13**	**12/31/14**
	JTTSP	5/17/14	
Victoria DCI	D-Day	3/21/14	12/31/14
	FOTB	**4/5/13**	**6/30/15**
	GWS	1/14/14	1/14/15
	HidUniv	10/25/13	10/24/14
	IOLM	5/16/14	
	TOTIA	8/30/13	5/31/15
Virginia Beach AMSC		GWS	5/29/14
		5/31/15	
Vulcania	EarthWin	3/14	2/15
	Vulcania	2/22/02	

Theater	Film	Open	Close
Warsaw CC	AfricAdv	10/4/13	10/3/14
	G3DNW	**6/18/14**	**9/18/15**
Washington NASM	D-Day	5/23/14	12/31/14
	HidUniv	1/30/14	
	ToFly	7/1/76	
Washington NMNH	FOTB	10/5/12	9/30/14
	IOLM	4/4/14	
	L&C	1/1/13	12/31/14
	TOTIA	10/18/13	10/31/14
	UWT3D	3/15/13	3/31/15
Yellowstone	TOTIA	5/1/14	5/31/15
Zion	ZionCany	7/1/08	

Key to Film Abbreviations

Film	Title	Year		Dist
AfricAdv	African Adventure 3D	2007	3D	nWP
AirRacer	Air Racers 3D: Forces of Flight	2012	3D	3DED
Alamo	Alamo: The Price of Freedom	1988		MFF
Alaska	Alaska: Spirit of the Wild	1997		HMNS
Alps	Alps: Giants of Nature, The	2007		NGD
Amazon	Amazon	1997		MFF
Animalop	Animalopolis	2008	3D	K2
Arabia3D	Arabia 3D	2010	3D	MFF
BTBW	Born to Be Wild	2011	3D	IMAX
Bugs	Bugs!	2003	3D	SKF
CRA	Coral Reef Adventure	2003		MFF
CV	Cosmic Voyage	1996		IMAX
D-Day	D-Day: Normandy 1944	2014	3D	3DED
DIA	Dream is Alive, The	1985		IMAX
DinoAliv	Dinosaurs Alive	2007	3D	GSF
Dolphins	Dolphins	2000		MFF
DPTP	Dinosaur Passage to Pangaea	2011	3D	CGI
Dragons	Dragons: Real Myths and Unreal Creatures	2013	3D	B&D
DS3D	Deep Sea 3D	2006	3D	IMAX
EarthWin	Earth Wins, The	2013		HFL
Everest	Everest	1998		MFF
FightPil	Fighter Pilot: Operation Red Flag	2004	3D	K2
FlyMons	Flying Monsters 3D	2011	3D	NGD
FMTTM	Fly Me to the Moon	2008	3D	nWP
FON	Forces of Nature	2004		NGD
FOTB	Flight of the Butterflies	2012	3D	SKF
G3DNW	Galapagos 3D: Nature's Wonderland	2014	3D	nWP
GC	Grand Canyon: The Hidden Secrets	1985		NGD
GCA	Grand Canyon Adventure: River at Risk 3D	2008	3D	MFF
GP	Greatest Places, The	1998		MFF
Greece	Greece: Secrets of the Past	2006		MFF
GWS	Great White Shark	2013	3D	GSF
HaunCast	Haunted Castle	2001	3D	nWP
HCBTD	Hearst Castle: Building the Dream	1996		NGD
HidUniv	Hidden Universe	2013	3D	MFF
Hubble3D	Hubble 3D	2010	3D	IMAX
HumanBod	Human Body, The	2001		NGD
IOLM	Island of Lemurs: Madagascar	2014	3D	IMAX
Jerusale	Jerusalem	2013	3D	NGD
JTM	Journey to Mecca	2009		SKF
JTTSP	Journey to the South Pacific	2013	3D	MFF
Kenya	Kenya 3D: Animal Kingdom	2013	3D	3DED
L&C	Lewis & Clark: Great Journey West	2002		NGD
LastReef	Last Reef, The	2012	3D	GSF
LivingSe	Living Sea, The	1994		MFF
LOF	Legends of Flight	2010	3D	K2
Meerkats	Meerkats 3D	2012	3D	NGD
MOF	Magic of Flight, The	1997		MFF
MOTGL	Mysteries of the Great Lakes	2008		SN
MOTN	Mystery of the Nile	2005		MFF
MOTUW	Mysteries of the Unseen World	2013	3D	NGD
Mummies	Mummies: Secrets of the Pharaohs	2007		GSF
ND	Neelkanth Darshan	2005		unk
Niagara	Niagara: Miracles, Myths, and Magic	1987		NGD
Ozarks	Ozarks: Legacy and Legend (aka Fiddle)	1993		IMAX
Penguins	Penguins 3D	2013	3D	nWP
Rescue	Rescue 3D	2011	3D	K2
Rheged	Rheged: The Lost Kingdom	2000		unk
RME	Rocky Mountain Express	2011		SLC
ROF	Ring of Fire	1991		MFF
SAA	Shackleton's Antarctic Adventure	2001		NGD
SeaMonst	Sea Monsters: A Prehistoric Adventure	2007		NGD
SeaRex	Sea Rex: Journey to a Prehistoric World	2010	3D	3DED
Sharks3D	Sharks 3D	2004	3D	3DED
SpacJunk	Space Junk	2012	3D	K2
TA	Tornado Alley	2011	3D	GSF
ToFly	To Fly!	1976		MFF
TOTIA	Titans of the Ice Age	2013	3D	GSF
TTA	To the Arctic	2012	3D	IMAX
UWT3D	Ultimate Wave Tahiti 3D, The	2010	3D	K2
VanGogh	Van Gogh: Brush with Genius	2009		MFF
Vulcania	Vulcania	2002		unk
WATE	Wild Australia: The Edge	1997		MSI
WildOcea	Wild Ocean	2008	3D	GSF
WM	Watermelon Magic	2013	3D	B&D
WOTA	Wonders of the Arctic	2014	3D	GSF
WTP	We the People	2013		ISP
WTTR3D	Waking the T-Rex: The Story of Sue 3D	2010	3D	GSF
WWDPP3D	Walking With Dinosaurs: Prehistoric Planet 3D	2014	3D	GSF
ZionCany	Zion Canyon (aka TOTG)	1994		K2

Summer 2014 Bookings Count

#	Film	#	Film	#	Film	#	Film
46	IOLM	5	Rescue	2	LivingSe	1	GC
42	FOTB	5	SpacJunk	2	MOTN	1	GP
40	TOTIA	4	EarthWin	2	Mummies	1	Greece
34	GWS	4	Kenya	2	Niagara	1	HaunCast
33	Jerusale	4	WM	2	RME	1	HCBTD
29	D-Day	4	WTP	2	SeaMonst	1	Hubble3D
24	JTTSP	3	DinoAliv	2	WOTA	1	Meerkats
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5	AfricAdv	2	Dragons	1	CV	1	Vulcania
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www.smv.org

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I am a giant-screen film and museum exhibition professional with 30 years of experience, looking for a full-time, part-time, or consultancy position with a museum, theater, production company, or distribution company. I was responsible for the technical and operational opening of the Mugar Omni Theater in Boston, for two complete renovations, and for the installation of a separate 3D cinema. Positions I've held include Chief Projectionist, Theater Manager, and Film Programmer. I was Director of Featured Experience at Liberty Science Center, Jersey City, NJ, where I oversaw the operations and programming of the IMAX and 3D theaters and traveling exhibitions. I have also served as a consultant for theaters and film distribution, participating in over 20 theater advisory committees for giant-screen films. I have been a member of the LFCA and GSCA boards and am currently a member of GSCA, IMERSA, and AAM. Please contact Cherie Rivers at cherie.rivers@ymail.com or 617-605-7551.

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SHORTS

GSCA to host 8K dome demo

On Wednesday, Oct. 22, the **Giant Screen Cinema Association** will host a demonstration of 8K fulldome projection at the **Science Museum of Virginia** in Richmond. The event will feature "technical sessions, demonstrations, guest speakers, and discussions [about] content supply and business practices," according to a press release. The meeting immediately follows the **Association of Science Technology Centers** conference in Raleigh, NC. The GSCA will provide bus service from Raleigh to Richmond on Oct. 21.

The museum's 8K **Digistar 5** system was supplied by **Evans & Sutherland** and complements the dome theater's 31-year-old 15/70 film projector. It uses five 4K 3D projectors, each with a light output of 25,000 lumens. Although called 8K, with the overlap from tiling the projectors, the actual number of unique pixels displayed is about 6,200x6,200. Richmond's is the first 8K system to be installed on a tilted and truncated giant-screen dome.

For more information and to register, visit giantscreencinema.com.

New DMR releases

Imax Corporation has announced several new Hollywood films that will be released to IMAX theaters. ***Hercules*** starring **Dwayne Johnson** opened on July 25, earning over $100 million worldwide in its first two weekends. ***Lucy***, directed by **Luc Besson** and starring **Scartlet Johansson**, will open in "select international territories" starting on Aug. 8. ***The Equalizer***, based on the 1980s TV series, and starring **Denzel Washington**, will open in IMAX theaters worldwide starting on Sept. 26.

Filling the traditional hole in the release window in early September, a DMR version of **Robert Zemeckis**' ***Forrest Gump***, starring **Tom Hanks**, will open on Sept. 5, the 20th anniversary of its original premiere, and coinciding with the release a new Blu-ray edition of the Oscar-winning film. The film is nominally set for a one-week run, although in the past, such releases have often been extended by a week or more.

Island of Lemurs opens wider

Imax Corporation's ***Island of Lemurs: Madagascar*** will open in commercial IMAX theaters in North America starting on Aug. 22. The 3D documentary, directed by **David Douglas** and written and produced by **Drew Fellman**, opened in institutional theaters in April.

The film features the conservation work of Dr. Patricia C. Wright, an expert on lemurs, who recently received the Indianapolis Prize for achievement in animal conservation. The film is narrated by Oscar-winning actor **Morgan Freeman**.

Scientist Dr. Patricia C. Wright is featured in Imax's Island of Lemurs: Madagascar.

Award wins and nominations

Several GS films have recently won or been nominated for awards at various ceremonies and festivals.

In May, cinematographer **Warwick Fields** won the Golden Tripod Award in the "Documentaries, Cinema and Television" category at the **Australian Cinematographers Society Awards** for his work on **Helifilms**' 2013 film, ***The Earth Wins***.

In June, at the **British Academy of Film and Television Arts** awards, ***David Attenborough's Natural History Museum Alive 3D***, produced by **Atlantic Productions**, won in the category, "Television: Specialist Factual." (The program will be released to giant-screen theaters in 2015.) Atlantic previously won a BAFTA award for ***Flying Monsters 3D*** in 2011.

And several titles are nominated for Panda Awards at the 2014 **Wildscreen Film Festival**, to be held in Bristol, UK, in October. In the "Theatrical" category, the GS films ***Flight of the Butterflies*** from **SK Films** and ***Journey to the South Pacific*** from **MacGillivray Freeman Films** are up against the conventional release of ***Chimpanzee*** from **Disney Nature**. *David Attenborough's Natural History Museum Alive 3D* is nominated in six categories, including "3D," "Children's Choice," and "Innovation." ***Mysteries of the Unseen World*** from **National Geographic** is up for the 3D and Science awards. ***Tiny Giants 3D*** from **BBC Earth** is also nominated in the 3D category.

The following films have been nominated for the **Jackson Hole Science Media Awards**, to be presented in Boston immediately before the **Giant Screen Cinema Association** conference in September. In the "Best Immersive Cinema (3D/Large Format)" category, *Flight of the Butterflies* and National Geographic's *Mysteries of the Unseen World* and ***Jerusalem*** are nominated. Four titles are nominated in the "Best Immersive Cinema (Fulldome)" category: *Moons: Worlds of Mystery, Bella Gaia: Beautiful Earth, Dark Universe,* and *Supervolcanoes.* **BIG & Digital**'s ***Watermelon Magic*** is nominated for "Best Children's Education Program." And *David Attenborough's Natural History Museum Alive 3D* is nominated for "Best Earth Sciences Program" and "Best Hosted or Presenter-led Program."

IMERSA forms standards group

IMERSA, the association for Immersive Media, Education, Research, Science, and Arts, has announced the formation of a new special interest group, the Association of Fulldome Innovators (AFDI), which will "facilitate the convergence of film domes and digital domes" through "community-wide professional standards" and "move the immersive dome medium forward," according to a press release.

The move had its origins at IMERSA's March summit in Denver (*see LF Examiner, March-April 2014*), where representatives of fulldome system providers **Evans & Sutherland**, **SCISS**, and **Sky-Skan** formed AFDI. Reps from **RSA Cosmos**, **GOTO**, **Konica-Minolta**, and **Zeiss** have since joined. The organization urges other interested parties to join by contacting E&S' **Michael Daut** at mdaut@es.com. The AFDI Web site is domestandards.org.

Imax Corporation